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SCHOOL





THE
TEACHER'S TECHNIQUE



The Century Education Series

THE TEACHER'S TECHNIQUE

BY

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PREFACE

The Teacher's Technique has been prepared for the large group of teachers who are compelled to attack the teaching problems of the grammar grades and high school with very little training to help them. If it proves to be of value to these people it will have fulfilled its mission. Although a good background of educational theory and educational psychology is to be desired as a foundation for the technique of teaching, those teachers who master the points of teaching method and classroom procedure presented here will be better qualified to cope with their problems even if they do not have the other training.

The subject-matter included in this work was collected for my classes in teaching methods. Consequently most of the ideas have demonstrated their value by actual use.

The prospective teacher who studies this book will master the points of technique more thoroughly if the exercises at the ends of the chapters are applied in the observation of classroom teaching. Experienced teachers will find much material in their own work that will aid them in interpreting the problems; but they, too, may gain by applying their new knowledge in classroom observation. It is quite customary for teachers to visit

the work of others as a means of self-improvement. Such visitation, however, is not very effective unless it is guided intelligently. Casual visitation observes nothing, as a rule, except the showy devices.

The phrase which Tennyson put in the mouth of Ulysses, "I am a part of all that I have met," aptly describes my situation. Many teachers and many books have contributed to the contents of "The Teacher's Technique." I am indebted to them and to my college students who prepared the lesson plans that are used. I am glad to acknowledge especially the help and inspiration that I received from the late Dr. Charles Hughes Johnston.

Others to whom I am indebted for ideas and inspiration are Dr. W. C. Bagley, Dr. L. D. Coffman, Dr. A. R. Mead, Dr. M. V. O'Shea and Dr. G. M. Whipple. To these and to all others who have contributed a part in making this book a possibility I acknowledge my obligations.

CHARLES ELMER HOLLEY

Urbana, Illinois
March, 1922

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EDITOR'S INTRODUCTION

Although here and there individuals may be found who although skilful teachers have never made systematic study of the technique of teaching, the great majority of teachers without such study are working ineffectively, wasting energy, and can never develop the skill in and love for their work that would have been possible with proper professional training. While the acceptance of the idea of the fundamental necessity for professional training of all teachers is not yet as general as it should be, it is inevitable that such general acceptance must in time be secured. The contrast between the work of the teacher intelligently trained in the technique of his profession and one without such training is so great that even the layman observing the work of the two cannot fail to realize it.

Technique, however, involves far more than familiarity with certain devices making for systematic use of time and economic organization. A teacher with good technique must have knowledge in the light of current educational thought of all the factors that condition teaching. He must have appreciation of the objectives of the curriculum and of the principles involved in the selection of subject matter. He cannot ignore the expected results to the pupil of the work for which the teacher is held responsible.

The teacher possessing skilled technique knows the value of proper assignment of work, realizing that teaching is mainly directing intelligently the learning process. He values the recitation as a means to an end and not as an end in itself. He understands, if he has mastered his technique, the final aims of the school and utilizes intelligently his opportunities for securing the forming of proper habits and the development of proper emotional attitudes. He understands the significance of educational measurement and the possibilities of intelligence tests as supplementing his knowledge of the pupils derived in the more traditional ways.

In short the technique of teaching requires intelligent familiarity with much of our more recent educational investigations. Obviously an elementary treatise on the teacher's technique can not hope to cover so complete a program. This volume attempts in a simple fashion to put the student on the right track and to give him some familiarity with many of the fundamental ideas that underlie intelligent teaching. It should be a valuable book for the untrained teacher to use in his effort to make more systematic his knowledge of the teaching problem. It should also meet the needs of normal schools and colleges for an elementary text on the fundamental principles underlying technique and class management.

CHARLES E. CHADSEY.

THE
TEACHER'S TECHNIQUE



THE TEACHER'S TECHNIQUE

CHAPTER I

INTRODUCTION

WHEN the Germans invaded Belgium in 1914, they disturbed the world's social and economic equilibrium in many ways. The masses were swept by waves of discontent at their lot and readjustments of all sorts took place. Although the United States did not enter the World War until more than two and a half years after it began, the unusual demands for certain lines of products and commodities early resulted in rising prices. When we declared war the movements that had already started were accentuated, until we reached the forty-five-cent dollar with its accompanying hardships.

There is no class of people who were more affected by the depreciation of the dollar than the teaching profession. With but few exceptions, teachers are employed on yearly contracts. Further, the funds from which they are paid are usually raised from taxes

levied months before the salary contracts with the teachers are made. This situation has resulted in an inertia in teachers' salaries which was not equaled anywhere else unless it was in the United States Postal Service and allied branches of the Civil Service. When teachers found that, in spite of years of training, they could not make a living in their chosen work, many of them gave up this work of service and went into industrial employment. There was a general exodus from the teaching profession, which resulted in the loss of many of the best young teachers to the work. In addition to causing many teachers to give up the work, low salaries reduced the addition of new blood to the service to such an extent that there is an unusual shortage of workers at present. This dearth is so great that, although every device has been employed to fill the vacancies in our schools, many schools have been closed because no one could be found to do the work. This is the condition at a time when salaries are nearly on a par with the cost of living. Since the average teacher usually puts in only a few years of service before marrying or taking up some more gainful or congenial occupation, it can be seen that our schools are in a crisis.

In spite of the obstacles that have been put in the way of progress toward a well trained teaching personnel in this country by the reverses of the past five years, the leaders have not lost faith. The teaching art still is recognized by many people as one that de-

mands training and complete consecration to its ideals. Those who give their lives to it are carrying on a very important and exacting life-work. This point of view has cultivated a sensitiveness to the various details of the art that will result in a much higher quality of work as a complete conception of its requirements becomes recognized by the rank and file. At present, however, the rank and file of the teaching profession is far behind its leaders. Of course, this condition is always true of any evolutionary movement.

The last decade has been one of unusual progress along scientific lines. A vast number of new concepts has been evolved and justified in the educational world. Time is required for the assimilation of these new ideas by the masses of the people, although the teaching class, because of its superior training and general ability, can probably acquire them very rapidly. Consequently every effort must be made to stimulate the dissemination of the new ideas that are continually evolving from our efforts.

The evolutionary conception of the teaching art may be made clear by a few general illustrations from educational history. Until about one hundred years ago all teaching consisted of the guidance of individual memorizing. The master set each pupil a lesson and then left him to get it as best he could. When the pupil had committed the lesson to memory, he went to the teacher to recite. To recite consisted of nothing more than to repeat the lesson word for word—rote

memory. No questions or explanations were asked or given. One after another, the pupils went through this procedure, and the teacher had no other duties than to set tasks and listen to the pupils repeat them from memory, unless one might consider the application of the birch a duty. This switch came into use whenever a boy failed to appear at the expected time or appeared with his lesson incompletely memorized. It supplied about the only motive for study that was found in the schools of those days.

In arithmetic the work was extremely formal. Ciphering books were used, and an individualistic treatment was the rule. When a boy was old enough to learn ciphering, his parents provided him with a blank-book, made by sewing together a bundle of blank papers. Carrying this book, the boy went to the teacher and made known his desire to learn the mysteries of arithmetic. The teacher then hunted up his own book, one he had made years earlier as a pupil when he had learned to cipher, and set the boy a sum, telling him the rule by which to work it. Plunged thus into the midst of the difficulties of addition, the pupil worked out his own salvation. If, after working industriously for a time, the pupil succeeded in securing what seemed to himself to be the desired result, he went to the master with the work that he had performed on a bit of scrap paper or a slate. The master approved or disapproved the work on the basis of its agreement or disagreement with the work in his

own ciphering book. If the pupil's work was identical with the master's, it was given the stamp of approval and was ordered copied into the ciphering book along with the rule by which it had been worked. If there proved to be the slightest difference between the pupil's and the master's work, the pupil was told to do it all over again, even though the essential parts were correct.

It is thought that this method of teaching arithmetic originated when there were no text-books. It continued long after there were text-books in other subjects, however. When text-books finally were introduced in arithmetic, the method of teaching continued to be much the same. This is shown by the universal practice of providing keys for the teacher's use. Further, many of our parents and most of our grandparents, especially those who were educated in the country schools, can testify to instruction of a similar nature.

Another illustration of the mingling of conservatism with progress is shown in the evolution of class-teaching. Up to the time of the monitorial movement, teaching was an individualistic procedure. Pupils were not graded or classified, but each was in a class by himself and each progressed as rapidly as his capacity and industry permitted. The introduction of the monitorial system revolutionized all this. Pupils were classified and moved as groups. When first introduced, however, the monitorial system did not plan to use

any radically new teaching methods. A few devices were introduced, especially blackboards, maps, and charts; but, in the main, it was intended that the monitors should teach the pupils individually, just as they had been taught by the master. When new methods, designed for group teaching, were introduced, monitors had to give way to trained teachers.

Many of the individualistic and monitorial methods persisted long after the group method of teaching had come into vogue. It has been only in recent years that some of the practices, such as calling on pupils in a fixed order, demanding an exact reproduction of words where a memory of ideas would be more serviceable, and the like, have given way to others better suited.

It has been said that one may find teachers conducting class-work now in some of our schools in the same way in which it was conducted generally seventy-five years ago; in other words, some people are still following the general practices of three or four generations ago in their teaching. How can this be? The answer is simple. Many of our teachers are untrained in the best methods. All that they know about teaching has been copied from the ways in which they were taught, or has been picked up from fellow teachers and from relatives who taught school once upon a time. Under such conditions it is no wonder that progress in the evolution of teaching methods is slow and halting. The only solution for this problem is a universal requirement that people secure a minimum of real

training before they are permitted to take up teaching.

The introduction of group-teaching, which came with the monitorial system, brought many changes in teaching methods. To be sure, the many new subjects and new materials of instruction that have been given a place in the curriculum must receive credit for numerous innovations. But the greatest factor in the situation has been the possibilities offered by group-teaching. Group-teaching emphasized the careful grading of pupils. The grading of pupils and the grading of subject-matter tended to go hand in hand. Then a new theory and mode of discipline was evolved, and a new purpose in questioning and in the conduct of the recitation was recognized. All of these things finally resulted in directing attention to the teaching process itself, and differentiation resulted here. It was found that different methods were to be desired in drill exercises, where things were memorized and habits were formed, from those used in imparting knowledge and in developing the emotional sides of the pupils' lives. More recently it has been recognized that mere class uniformity is not to be desired, but that underneath the uniformity the individuality of each member must be developed. It is not sufficient to impart knowledge and to train emotions. Things must be connected with life. Training for an active participation in the life of an organized society is the real mission of the public school.

Recently this new conception of the mission of the

public school has led to recognition of the fact that there is a social aspect of the teaching process. Teachers have found that ideas seemingly are living things, which behave in ways of their own. Ideas that the teacher imparts to a pupil or a class become the property of the school or community, impregnating the entire social fabric. Likewise community biases come into the school, although the teachers do their utmost to keep them out. Ideas, sentiments, and prejudices that may have been dropped casually in moments of inspiration in the class-room act like a bit of yeast which leavens the whole mass. These phenomena have led progressive teachers to reflect and to wonder if such results were not the outcome of the operation of definite social forces, which might be controlled if understood.

The sociologists have made much of this phase of social life. Perhaps, with their aid, it may be possible to work out a satisfactory analysis of the social aspects of the teaching process. A recognition of the social aspects of discipline has been presented to the educational world already. The importance of the social elements in moral education is also recognized. But many important phases of the teaching process involved in class-room exercises have been considered but little in their social aspects. This will be one of the fruitful fields of analysis in the future.

The following chapters will consider the technique of teaching in its evolutionary aspects. The various



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factors that condition the teaching process will be presented, and much that has proved itself of value through actual trial in the class-room will be given. There remain many unsolved problems, however; for the end of the evolutionary movement has not been reached.

CHAPTER II

THE FACTORS THAT CONDITION TEACHING

THE FACTORS

THE results of a teacher's efforts in the class-room depend upon the operation of many factors. If a person knows these factors, he can, when trained, predict in general the kind of work that a teacher will do. These factors fall roughly into two main classes: first, those that are constant from day to day and are established once and for all in the first few days of the school year or the first few days of a period of readjustment; and second, those that are continually varying with the spirit of the moment. The first group may well be called *objective* conditions, and the second group *subjective* conditions. It must be remembered, however, that such a classification is not hard and fast, and that many things will be met that do not seem to fall in either group, but that partake of some of the characteristics of each.

Some of these factors are outside the control of the individual teacher. Where a teacher is a member of a school system or of the teaching corps of a graded building, some things are not in her dominion. She

can not prescribe the system of grading and promotion used. She has nothing to say about the architecture of her class-room, which probably was built years earlier. When it comes to remodeling the heating system, she is seldom consulted. But there are many spheres outside her immediate province, such as pupil movements in large buildings or playground routine, where tactful suggestions are received gladly by superintendents and principals.

OBJECTIVE CONDITIONS

As has been stated in the preceding section, objective conditions are those factors conditioning the teaching process which are relatively constant from day to day. They are adjusted at the beginning of a term, and few changes are made until the term has been completed or an emergency appears. The more typical ones are so constant that they should be met by habitual reactions on the part of the children. Doing them day after day ought to result in the formation of habits. They are very important, for, if they are not properly met, much time is wasted. In these days of efficiency and economy every teacher must be somewhat of an efficiency expert if her work is to be done satisfactorily, and these conditions must be given thought and attention. Many precious moments are wasted by teachers who have not learned to arrange the objective conditions in a manner that will be most helpful.

PHYSICAL CONDITIONS.

The physical conditions of the class-room presents a definite problem in effective conditions of teaching, though the physical conditions are not as bad as some of the other items.

1. Heating.

Teachers do not have very much control over the heating system in building except in one-room rural schools. There are some cases that the teacher may have some control over a heater even in the large schools. The school authorities herself with the practical workings of the heaters so that when cold weather comes in time will be lost in learning how to use them. There are some regulators are not installed in buildings and the heating system will be in operating the waste of fuel that is so notorious in our public schools. When that weather arrives and becomes necessary to use after the heating of the school systematically, pupils-mentors may be taught to use the fuel as effectively as the teacher herself, and in a separate will save her much trouble.

The humidity of many school-rooms is lower than that of the Sahara Desert. Unless there is an adequate provision for adding moisture to the air when it is heated, little can be done to remedy this condition, however.

B. *Ventilation.*

The ventilation of the room is as important as the heating, for foul air is just as detrimental to effective work as are cold hands and feet. Where an automatic ventilating system that works is in operation, there is little for the teacher to do but to leave it alone. In many schools the ventilation is inadequate and the windows must be used to supplement it. Some of the patented systems are supposed not to work effectively when windows are open. In case the provisions for providing fresh air are of this type, they must be given a fair trial before they are condemned. If they prove unsatisfactory when tried out, then it is best to supplement with window ventilation. Fresh air is badly needed when a room presents a marked odor to one coming in from out of doors or when those within notice the stuffiness. People in the room are not so liable to notice the need as new-comers, because their senses have become dulled. The teacher should learn to detect the need for a change of air, which is shown by dull, drowsy, and restless pupils. To provide window ventilation, it is better to have the fresh air enter at the top than at the bottom of the windows. If it enters at the top, it will become warmed before reaching the level of the pupils. If it comes in at the bottom, it will reach the floor so cold as to chill the feet without disturbing the hot, stifling air at the level of

the pupils' heads. When the pupils leave the room at intermissions, it is well to open the windows wide to allow a few minutes of thorough ventilation.

C. *Lighting.*

The illumination of the class-room should be sufficient to prevent eye-strain in the most poorly lighted parts. The teacher may test the illumination of these by noticing if she experiences any discomfort while reading the ordinary text-books in them. If there are parts of the room insufficiently lighted, they should not be used until the fault is remedied. The best illumination is secured from skylights, and it is unfortunate that so few schools make use of this form of lighting. The next best is a series of windows on one side of the room, but this form sometimes leaves the farther portions of the room with too little light when the curtains are partly drawn. Windows on two sides of the room are bad for ordinary study and reading work, because of the cross shadows that appear on the pages of the pupils' books. Shadows on the page that a pupil is reading make his eyes do several times as much work as they should, wasting his nervous energy and laying the foundation for eye trouble. The pupil should be seated so that he can have the light from the rear left for his work. Further, he should never be called upon to read work on a blackboard that reflects a glare or that is between two windows admitting light. This last point makes it necessary that the teacher select

blackboards that are correctly placed. A proper manipulation of the window-shades will aid in securing the best conditions possible under the circumstances. The teacher who never adjusts them is neglecting some of the first principles of school hygiene.

II. CLASS-ROOM MANAGEMENT.

A. *Routine Factors.*

Some of the most important objective conditions fall in this class. Routine factors are nearly all within the control of the class-room teacher, and are very important. Teaching success or failure is determined often by the way these are handled.

1. *Seating of pupils.*—Pupils should have definitely assigned seats. This is a fundamental principle of class-room economy. Assigned seats enable the teacher to become acquainted with the pupils in a very short time. They also make it possible to check the attendance quickly. Pupils know where they sit and there is no confusion when they enter because of the uncertainty of their places—no scrambling for the choice seats. In assigning seats a mere chance allotment often breaks up cliques and helps to solve problems of discipline. Pupils never should get the idea that they have a vested right to cherished seats. The seating arrangement at any time is only a temporary expedient, which may be rearranged whenever it seems desirable. This is the teacher's privilege. As an aid to discipline, it is well to put bright, active pupils in

the front of the room where there is less temptation to mischief. Assigned seats are an aid in returning class papers, note-books, and other property that the teacher has collected for inspection.

2. **Pupil movements.**—Pupil movements should be so organized that there is no confusion or loss of time. Unorganized pupil movements lead to congestion and encourage loitering and disorder. Most schools have planned a good system of pupil movements for dismissal and fire drills, while they have neglected class movements where changes are made from room to room between class periods. These changes often are made with a maximum of confusion and disorder. A less important waste due to lack of system is to be found in unorganized passing to the blackboard or to the different seats in the laboratory. Where pupil movements are controlled by a system of bells, if there is no master clock to ring them on time, a pupil-monitor may be intrusted with the operation of the push-buttons, thus relieving the teacher or principal of a troublesome duty.

3. **Handling materials.**—Teachers, as a whole, waste more time in using inefficient methods of handling materials than in any other single activity. In the grades a system of monitors often solves the problem; but in the high school monitors are used but seldom. Pupils bring class themes or note-books to the teacher's desk one by one. Teachers pass out papers one at a time, using several minutes to distribute a set of

papers that could be placed in the hands of the pupils in a few seconds. A good way to solve this problem, where monitors are not used, is to adopt a system that will put the papers in a specified order and then use that plan each time. If the papers or note-books are kept in the same order by the teacher, they may be returned as quickly as they are collected. An illustration of the way some teachers provide for this is shown by the following instructions, which can be given to a class of pupils arranged in rows from the front to the back of the room. "Please pass the papers to the front. Each pupil will put his paper on top of the bundle. Those in the front seats pass the bundles to the left, putting each new bundle on top."

Teachers often solve the problem of collecting and distributing regular papers and note-books, while they neglect to routinize the distribution of new materials. New materials should be distributed on the pupils' seats before class is called. This distribution may be performed by some of the pupils, who often enjoy doing it. When materials or apparatus are needed for general demonstrations, such as in science classes, they should be on hand before class, and should have been tested out so as to make certain that they will work when needed. Bungling experiments and nervous actions in demonstrations are usually the result of lack of preparation with materials and apparatus. Some teachers manage materials and apparatus satisfactorily while handling and using them, but have no system in their

closets and store-rooms. Their desks present a constant display of confusion. Each piece of apparatus, package of supplies, or book should have its definitely assigned place, and pupils and teacher should cooperate in keeping it there.

Another source of waste is in the making of special assignments to individual pupils. It is often economy to write these out on slips of paper, in order that they may be handed to the pupils without loss of time. This plan insures accuracy by eliminating the errors of copying that pupils sometimes make. A similar waste occurs when pupils copy a mass of reading material, outlines, notes, or directions from the blackboard, or write them from dictation. These materials should be mimeographed, if possible, and copies given to the pupils.

III. DISCIPLINE.

A. *Good Discipline a Necessity.*

In order that pupils and teacher may coöperate in the best way in the educative process, it is necessary that first things be put first. This means that the educative business of the school must be in the foreground; that every one be busy about his work without interfering with the work of others. When all cooperate to prevent interference with the rights of others and all keep busy, *good discipline* may be said to be present. Good teaching is made possible by good discipline, and, in turn, makes for good discipline. It has

been said that discipline is best when it is least in evidence. Ability to secure good discipline has been shown to be one of the factors most important in the qualities making up a good teacher. Further, its lack has been found to be one of the most important reasons for teaching failures. A teacher must have conditions of order for her work. If these conditions can not be secured through ingenuity and insight, they must be secured through fear and force, however much the latter method may be condemned.

B. *Changing Character of Discipline.*

The introduction of the doctrine of interest has brought marked changes in the measures for securing discipline. Before the era of motivation and interest teachers controlled the school mainly by means of fear. The attitude of the teacher in those days was one of domination. Under present conditions a teacher tries to *lead* the school in paths of industry. Occasionally it may be necessary to resort to stern measures, but if such are needed continually it is an indication that something is seriously wrong. At the beginning of the school year, when a teacher takes charge of a new group of pupils, discipline is secured mainly by the awe and respect inherent in the teacher's position. As the year progresses, however, order should result from a bond of sympathy and coöperation that has been cultivated by the teacher. Pupils should coöperate in maintaining order because it is only right that every

one have a chance to learn as much as possible and to carry on his work without interference from others.

C. *Social Aspects.*

Good discipline is a result of the right group attitude on the part of the pupils toward school life. It is a reflection of school and community ideas and ideals. Communities that are law-abiding and show an interest in coöperating with teachers furnish schools with the minimum of disciplinary problems, while the opposite also is true. Homes that criticize the teachers unreasoningly are homes that send to school children who are trouble-makers. A good school organization may do much to build up the right group attitude toward order. Even in the same type of communities, schools vary much in the results secured in discipline. These differences are mainly measures of the strength of the social pressure in the direction of right conduct that has been developed among the pupils by the teaching corps. Model pupils have been transferred from schools where the right attitude prevailed to those where it was missing, and promptly degenerated into trouble-makers. On the other hand, trouble-makers have come from the latter type of school and gone to the former, with the opposite result. When they found that mischief was not approved by their new companions, they tried other methods for gaining group approval. Group approval and disapproval are powerful factors in maintaining law and

order, and teachers should make use of them. When pupils have become accustomed to good order, they prefer it to the other kind.

It might not be amiss to mention the fact that the cultivation of the social spirit of law and order among the pupils of a school is an important step in the direction of moral development. Much of the disorder and disregard for law among adults is due to the fact that often they have never been taught the value and importance of law-abiding conduct. Many of them left school before they were old enough to comprehend social attitudes. (Children must, as a rule, be twelve years of age or older to be able to respond readily to the approval and disapproval of their fellows.) Others went to schools that cultivated the idea that law and order were something for the benefit of the other fellow, and that it was to one's credit if he evaded rules and regulations.

D. *Measures for Securing Good Discipline.*

1. **Proper routine.**—If a teacher provides the proper routine, many disciplinary problems will be avoided. Where the proper mode of procedure has been outlined, there is little temptation to indulge in anything out of the way. But where each pupil may exercise his own initiative there is always a temptation for the bright, mischievous one to indulge in something out of the ordinary, knowing as he does that the situation provides a ready excuse. In securing the proper routine

it is well not to overdo the matter, however. Routine is frequently expressed in the form of rules. Rules should be as few as possible, and all should be based on the fundamental one that only such things should be done as promote the welfare of the school and the class as wholes.

2. **Correct attitude on the part of the teacher.**—To be successful in discipline a teacher must take the correct attitude toward the school situation. The fundamental thing is that the teacher must always look at problems from the objective point of view. This means that an offense must never be taken as a personal insult. Every time a breach of good behavior is committed, even if performed with the expressed purpose of insulting the teacher, it is much more effective if the penalty is administered from the point of view that the misconduct has interfered with the rights of the group as a school. It is hard to adopt such an attitude, but it pays. A teacher should never punish in the spirit of revenge, because it violates this fundamental principle.

Those virtues that make up the ideal character in life are very valuable to the teacher. Among the more important are justice, consistency, sympathy, patience, persistence, and tact. Pupils expect fair, impartial treatment. Teachers can give it only if they live these virtues. In addition, a teacher must have the ability to make decisions at the moment when the need arises.

3. **Constructive measures.**—In addition to providing

the proper routine and adopting the correct attitudes, the teacher must apply constructive measures to secure good discipline.

a. *Make work the master:* One of the most important constructive measures that a teacher can use is to arrange the work in such a way that the pupils have no excuse for not being busy. One of the easiest plans for doing this is to provide so much work, and to require its completion, that the pupils can not waste time if they get it done. Another way, which is a little more difficult to manage but which is more educative, is to raise the qualitative standard of the work. Not more work, but better work, is the aim. Sometimes both can be used to advantage. It has been recognized by teachers for many years that if pupils are kept busy with interesting, educative tasks, there will be few disciplinary problems.

b. *Individual assignments:* Many of the problems of discipline arise from the misconduct of bright pupils who have completed the regular work. Not having anything to do, they find something. A teacher may use individual assignments to provide these pupils with work, to prevent the waste arising from misdirected energy. Where the teacher can not emphasize these individual assignments because of lack of time or equipment, these pupils may be provided for by placing a shelf of suitable books at their disposal. When they have completed their allotted tasks, they can go to these books for something to do. Teachers

sometimes are afraid to offer pupils these reading privileges, for fear they will neglect the regular assignments. This problem can be solved by a little patient supervision, emphasizing the fact that lessons come first. It is a marked gain for the average pupil to learn to decide when he really has his lesson. The schools of the past never really taught pupils to check up on themselves and stop studying a lesson when they had it mastered. Even if such pupils do neglect the regular lessons at times, they are usually bright enough to make up the deficiency at some later period when they discover it.

c. Stimulation of group responsibility: In the discussion of the social aspects of discipline, the point was made that right conduct, with the older pupils, should be a result of group attitudes of approval and disapproval instead of being a primitive fear reaction. How may this social sanction of right conduct be developed? The solution is primarily through the stimulation of group responsibility. This may be done by directing the attention of the group to the necessity for coöperation among all if each one is to get the best. The teacher is there to help them, and they must cooperate if they are to receive the teaching that is their due. Direct, tactful talks about some of the school-room problems will evoke sympathetic responses. When group offenses are committed, they may give excellent opportunities for the consideration of the

problems of school-room ethics. These talks and deliberations are real character-builders.

Another plan that is helpful is what is known as pupil coöperative government. The undue stimulation of group responsibility that comes from what has usually been known as pupil self-government may lead pupils to think they "run the school." Such an attitude is undesirable. In pupil coöperative government pupils and teachers coöperate in securing right conduct. It is recognized at the start that some things are handled more easily by pupils than by the teachers, and *vice versa*. There is no suggestion that the pupils are independent, and no implication that the teacher is intruding when she interests herself in student activities. As far as the pupils can handle the situation more easily than the teachers, they are permitted to do it. Whenever the pupil machinery proves inadequate, the teachers fill the breach.

d. Treatment of individual offenses: There is one principle that may be laid down, which is fundamental to the punishment of individual offenses. It is that a teacher should never punish the group for offenses committed by one or two members of it. There are so few situations where this does not hold that it is well for a teacher to apply this principle rigidly. The apparent exception, where an individual commits an offense in which he is backed up by the group, is in reality a group offense, the offense being the sanction-

ing of wrong conduct—when, of course, the group may be punished.

Breaches of conduct have been classified into three groups: (1) those arising from ignorance; (2) those arising from thoughtlessness or carelessness; and (3) those in which the action is contrary to knowledge, the doer not foreseeing, or not caring for, the consequences. This classification is helpful in prescribing the treatment needed by offenders. The first group frequently needs nothing more than information to prevent the repetition of the misdeeds. The second class also is to be handled largely by a thorough discussion among those involved of the rights violated; only here it is necessary to emphasize the necessity of right conduct, sometimes to the extent of administering light penalties. The third group presents the real problem. All serious offenses come under this class. Pupils committing such misdeeds are biased morally and need special treatment.

A plan that has been used in large schools where all serious cases of discipline were sent to the principal is as follows: When an offender arrived, he was given a sheet of paper and asked to write his version of the incident. This was examined by teacher, principal, and pupil together, and discrepancies were corrected. Pupils in serious cases were warned the first time. When a pupil came for a second offense he went through much the same procedure, but no penalties were given. This written account was filed in the office,

and if a pupil was a persistent offender, when he had committed several offenses he was asked to copy his previous narratives. It is said that this plan has been very effective in reducing persistent petty offenses.

In practice it has been found undesirable to punish pupils on the spur of the moment. A good plan is the following: When an offense is recognized by the teacher, she can immediately inform the pupil that she wishes him to stop a moment to talk the matter over after the others are dismissed. This gives the pupil a chance to think over the situation during the remainder of the session, and this meditation often leads to good resolutions. After the others have gone, there is an opportunity for a discussion of the situation by the teacher and pupil. Passions probably have subsided, and any punishment that may be necessary may be administered when the teacher is not angry.

IV. INDIVIDUAL DIFFERENCES.

A. *Recently Recognized Problem.*

Another important group of objective conditions, which is very influential in determining the results secured by a teacher, is that which arises from individual differences. Although teachers recognized for a long time that Johnny and Willie were very different, they thought little about it. They could always count on Johnny for a good lesson, even if he played a greater part of the time; but it was quite different with Willie. He worked all of the time but seemed to make little

progress. It seemed almost as if he forget one thing as soon as he learned the next. Recently, however, educators have been paying more attention to this problem, and it has become one of the most significant for the teacher.

B. *Importance and Character.*

It has been found that, if one hundred pupils are chosen by chance from one of our schools, they will vary markedly in abilities. A few will be very bright and a few will be very stupid. The great bulk will be average, while a number will be better than the average but poorer than the bright, and a similar number will be poorer than the average but better than the stupid. If similar lots of one hundred are chosen from other public schools, it will be found that there is about the same proportion of bright, average, and stupid in each hundred. Slight variations may be found in the proportions, but a careful checking up usually will show a marked uniformity. Thus, if one hundred pupils were to be ranked according to general intellectual ability, a rough classification probably would place them as follows:

Talented.....	5 per cent.
Bright.....	20 per cent.
Average.....	50 per cent.
Slow.....	20 per cent.
Stupid.....	5 per cent.

In the average class of twenty pupils it is estimated that the best is from four to six times as capable as the

poorest. If the extremes are present the difference will be much greater. The stupid pupils, however, seldom advance beyond the intermediate grades; hence the grammar or high-school teacher is, as a rule, not called upon to deal with them.

In addition to these differences in general ability, the problem is complicated further by the fact that abilities are specialized in some cases. Mary does well in her history and English work, and is a failure in arithmetic, algebra, and geometry. Frank enjoys mathematics and history, but he hates themes. George does excellent work in everything except Latin, and barely completes the work in that as a result of much special attention and a little charity. If a careful survey be made of any particular ability, marked differences will show up even where pupils are about alike in general ability.

As if this were not enough, the factor of interest adds its weight. It seems at times as if the specialization of interest, and consequent motivation of effort, is more important than differences in native capacity. Frances is going to be a school-teacher, Edward plans to be a farmer, and Edgar will go to college. All of these life plans contribute to varying interests and different responses. When these are added to the differences in native capacity, of general and special sorts, the problem becomes extremely complex indeed. Some are born long and some are born short, and it is the teacher's task to provide for each as seems best.

C. Provisions for.

It is a comparatively simple matter to provide for individual differences in large schools where there are many facilities. In small schools, however, the problem is just as important, but teachers have more difficulty in providing for it. A few of the more important measures for meeting the situation will be given.

1. *Diversified curriculum.*—The first plan generally adopted to provide for individual differences in our American schools was diversified curriculums, offered to meet different vocational interests. In the later years of the high school new series of courses were introduced, which aimed to prepare for business, farming, or home-making. Pupils chose curriculums when they reached a certain stage in their educational careers, and the way was marked out for them. One set of courses led to college, another to business, and others to different goals. This plan, however, has proved of little service in any but the later years of the high school. It has been adapted to the junior high school in some communities, but it seems somewhat unwise to differentiate pupils so early in their careers. American children and parents like to have the entire field of employment open to them, and a too rigid curriculum plan might not be satisfactory. It might lead to social stratification. Curriculum differentiation is mainly an attempt to provide for acquired differences

of interest, and does not provide for fundamental differences in native ability.

2. **Free election of courses.**—Another plan used is what is known as the free election of courses. Pupils are given opportunities to select the courses that they wish. Restrictions of various sorts are placed around the selections, but the purpose of the plan is to provide for different interests. There is nothing in it to provide for differences in native ability, except as these may be revealed by interest. Differences in interest tend to disappear after a subject has been taught long enough to pupils to develop a background of meaning. Therefore, the interests that are provided for usually by the free election of courses in high schools, excepting as they may be results of special aptitudes, are merely transient whims. Special aptitudes ought to be detected and provided for, but mere whims ought to be recognized for what they are.

3. **Grading pupils according to ability.**—A plan that aims to provide for differences in native ability, used in some schools, is based on the principle of grading pupils according to ability. It is applicable only in schools of some size, however. In the school where there are several sections of the same class, the sections may be formed on the basis of ability as shown by previous class work supplemented by group intelligence tests. If there are one hundred pupils in the class, they may be ranked from the best to the poorest

on the basis of the records. Then the upper twenty-five will form one section; the next twenty-five the second; and so on to make four sections. The work then can be adjusted to the capacity of each section. In a junior high school where this plan was adopted it was found that the best section of a class of five sections was able to do one and one half year's work in the three subjects history, geography, and algebra, while the poorest section completed about three fourths of the year's work. The best section did not seem to work so hard as the other, although it covered twice as much ground.

Another plan for providing a selection of pupils according to ability chooses the best ten per cent. and the poorest ten per cent. from the classes. The best ten per cent. form an honor section and cover more and different work. The poorest section is put in a special coach class in which it is given the minimum needed in the subject.

Grading pupils into sections according to native capacity introduces a number of problems that are mainly administrative. The same curriculum is not well adapted to different mental abilities. Then, there is the readjustment necessary when classes finish courses at different times during the year. The great question arises, too, as to whether it is as good a plan to hurry pupils over the required work and allow them to graduate earlier as it is to give them a richer, broader curriculum. There seems to be a tendency at present

to favor a middle ground, enriching some things and shortening the time for others. This is probably the best solution.

4. **Study coaches for slow pupils.**—A fourth plan for meeting the problem of differences in capacity is one that provides study coaches for the slow pupils. In some cases a regular teacher gives a part of her time to systematic coaching of those who need such help. In others a teacher has nothing but coaching duties. Often a little individual assistance will do much to help a pupil over a difficulty and bring about renewed progress.

5. **Supplementary work for bright pupils.**—This plan is suitable for nearly every kind of school and class. It is usually more of a makeshift than some of the other plans, but it need not be if teachers give it thought. It lends itself to emergencies and enables teachers to provide work to keep bright pupils out of mischief, and thus prevents disorder while it educates. There are a number of ways in which teachers may use this plan. They may place on convenient shelves a number of supplementary text-books giving references to topics related to the day's work, which may be consulted by the bright pupils in leisure moments. In some cases it may be worth while to excuse bright pupils from regular recitations in order that they may undertake special tasks for school or teacher. Any device that will provide extra work for the bright pupil will fulfil the requirement.

6. **Combination of plans.**—It is probably true that no one plan can be used successfully by all teachers. But in a combination of several of these plans may be found the solution for many of the problems arising from differences in capacity. In meeting this problem teachers should take care, however, that bright, nervous pupils are not overworked, on the one hand, nor slow pupils discouraged by being made the objects of ridicule, on the other. Bright pupils sometimes seem to purchase their mental brilliance at the expense of endurance. Slow pupils may be extremely sensitive as well as slow.

SUBJECTIVE CONDITIONS

The second large class of factors that determines the results of teaching is what may be called *subjective* conditions. The greater number of the things that are responsible for good or bad teaching come in this class. Subjective conditions are constantly changing, and must always be provided for by the exercise of thought on the part of the teacher. The arrangement and selection of subject-matter and its presentation in the class-room exercises furnish probably the largest group of these factors. They include also the sudden emergencies that arise in dealing with pupils, parents, and patrons.

The group is so large and so important that the various problems arising from it will furnish a basis for the following chapters. Many things are as yet in a

sort of trial and error stage. Where this is true, what seems to be the most promising solution will be given. Where nothing seems at all decided, the problem will not be considered.

SUMMARY

A teacher's efforts are conditioned by many factors, objective and subjective. Some of these are outside the control of the individual teacher, but many are under her jurisdiction. Objective factors are relatively constant from day to day, and should be adjusted permanently at the beginning of the teacher's work. These include the physical conditions of temperature, humidity, ventilation, and lighting; the factors of class-room management; discipline; and individual differences. Class-room management concerns itself with the routine factors of seating, pupil movements, and handling of materials.

Discipline is so important that it must be considered at length. Discipline changes in character as pupils become older, and takes on many social aspects in the high school. The measures for securing it are: (1) a proper routine; (2) the correct attitudes on the part of the teacher; (3) the establishment of a regimen of work; (4) systematic use of individual assignments; (5) the stimulation of group responsibility; and (6) the wise treatment of individual offenders.

The problem created by individual differences is newly recognized, and very important. It may be met

by the use of (1) diversified curriculums, (2) free election of courses, (3) the grading of pupils according to ability, (4) the use of study coaches for the slow pupils and supplementary work for the bright ones, and (5) by various combined plans.

The subjective conditions are so various and detailed that many chapters must be devoted to them. They are those factors that demand an intelligent solution every time they appear and they can not, therefore, be reduced to rules.

Suggested Readings

- BAGLEY, W. C. *Educative Process*. Chapter XXIII. *The Hygiene of the Educative Process*. This chapter presents some valuable details and suggestions.
- BAGLEY, W. C. *School Discipline*. A thorough treatment of the subject with emphasis on the social aspects.
- BURNETT, T. J. *The Essentials of Teaching*. Chapter IX. This valuable chapter intersperses suggestions for class-room management and discipline among excellent teaching suggestions.
- HARVEY, NATHAN A. *Principles of Teaching*. Chapters XXI and XXII. Two excellent chapters on defects of hearing and vision, written so as to be of practical value to teachers. Chapter XVI presents some excellent ideas on school discipline.
- PARKER, S. C. *Methods of Teaching in High Schools*. Chapter III presents suggestions on the economy of

time in class-room management. Chapter XV gives some convincing data on the reality of individual differences. Extensive lists of related readings may be found at the end of each of these chapters.

STRAYER, G. D. *The Teaching Process*. Chapter II. A discussion of the factors conditioning the teaching process, written from the point of view of the psychological factors.

Exercises

1. Visit school-rooms and note the following points:
 - a. Is the room comfortable?
 - b. Can you notice a decided odor when you enter the room after the school has been in session thirty minutes or an hour?
 - c. In cold weather, if the windows are used for ventilation, note whether they are opened properly. Do they ventilate the room or merely chill the floor?
 - d. How is the room lighted?
 - e. What improvements can you suggest in the use of the window-shades?
 - f. Are any of the blackboards in bad positions? How can the teacher remedy the defects?
 - g. What seating arrangements are in use?
 - h. What changes can you suggest to improve the pupil movements?
 - i. How does the teacher gather and distribute note-books and papers? What sugges-

- tions can you make that will save time in this work?
- j.* What are the good and bad points of the school discipline?
 - k.* Is the form of discipline employed adapted to the age of the pupils?
 - l.* What things make you think that work is, or is not, the determining element of the situation?
 - m.* What use is made of individual assignments?
 - n.* How many bright children are there in the room? How many stupid ones?
 - o.* What provisions does the teacher make for individual differences?
2. Why should a teacher not punish on the spur of the moment? What exceptions can you give?
 3. What arguments for and against corporal punishment can you present?
 4. At what age may the pupil be punished by depriving him of the privileges of his fellow classmates?

CHAPTER III

SUBJECT-MATTER

NATURE OF

TEACHERS often fail to recognize that each bit of real subject-matter is only a phase of human experience. It is merely the way men think, feel, and act. For convenience in school-work, in most cases, people have written accounts of parts of life's experience and have printed these in books. But this fact should not cause us to forget that the book is not subject-matter itself. It is merely a means for recording and disseminating the essence of subject-matter.

ORIGIN OF

When schools were organized, those parts of man's experience that seemed important enough for transmission to succeeding generations were collected and studied. Man's need for methods of reckoning and computation gave rise to what became known as arithmetic. His need for communication with his fellows furnished language and written forms of thought transmission. As society became more complex, subject-matter changed accordingly. At times ingenious groups of teachers and scholars organized groups of

subject-matter far beyond the needs of their time. Interested in the pursuit of knowledge for its own sake, they formulated rules, laws, and principles that they thought were true. The subject-matter then was organized around these, and when the task was finished, the average man hardly recognized the results as related to his needs. Some types of minds enjoyed such thinking, and it sometimes happened that subjects thus organized were preserved and handed down in the schools for generations. They were changed but little after centuries had elapsed, except that possibly a better organization was devised. Although they started as a phase of man's social needs, they became so modified later that they were of little value in providing for these needs. The classic example of this is to be found in the persistence and character of present-day Latin and Greek. Examples are to be found also in most of the older subjects.

As man's needs increased and changed, new groups of subject-matter were introduced into the schools. At present we are experiencing a wave of enthusiasm for the introduction of Spanish. This is the expression of a feeling that we ought to be able to communicate a little more readily with our American neighbors. Home economics has come into our schools in response to another group of social needs. The same thing is true of the vocational studies, agriculture, phases of manual training, and business courses.

FUNCTIONS OF SUBJECT MATTER

The functions or values of subject-matter may be classified in various ways. The most profitable classification, probably, is on the basis of the different kinds of values that pupils may derive from its study.

I. INTRINSIC FUNCTION.

The first important function of subject-matter is its practical value for life. A boy learns to read so that he may ascertain what people have recorded for others. He learns to write so that he may communicate his thoughts to distant friends. He learns to spell so that what he writes may be intelligible to those who receive his messages. Counting becomes of value in playing marbles and other games. When a girl writes an article for the school paper, she finds that the rhetoric she has studied helps her to criticize effectively what she has written. These are illustrations of the intrinsic function of subject-matter. They might be multiplied manifold, but these few will help to make clear what is meant by this value.

II. PREPARATORY FUNCTION.

Another important value that subject-matter has is the value it has for the future. Many things are taught that will not be of immediate service, but that, it is hoped, will be of use later. Children learn many

facts of history, geography, physiology, and science because there is a chance that they may need them sometime. They may serve only in the study of other things, but such values are important. This function is so vital that a major part of the work of the high school is looked upon mainly as college preparatory material. For the pupil who goes to college it serves this purpose, but for the one who makes the high school the finishing school the same subject-matter may satisfy some other function. The use that is made of the subject-matter determines its function.

III. DECORATIVE FUNCTION.

Many things that are taught and studied in school have no intrinsic or preparatory function, but are there because they are what educated people have studied. This value is appropriately named the decorative function. Oftentimes, in discussions of the reasons for studying facts of history and selections of literature that are taught in our schools, teachers try to conjure up practical values, when it would be better to say that these are studied because they are marks of culture. They are the things that educated people know. Closely related to these things are those that are of value mainly because they furnish a profitable employment for leisure time. Pupils study music, drawing, literature, and many other things because they are interesting and because they may help to pass the unoccupied moments of life.

IV. DISCIPLINARY FUNCTION.

The disciplinary function of subject-matter is one that is not emphasized so much now as it was in the past. There was a time when, if you asked any leading educator why Latin or mathematics was studied, he would reply that it trained the mind. Latin was supposed to be excellent for strengthening the memory, mathematics the reason, etc. Careful investigations of the results secured from studying such things have failed, in the main, to show any basis for such assumptions. The disciplinary function of subject-matter, as it was conceived in the past, is a myth. It does not exist. As a result, no progressive teacher now gives to pupils subject-matter that has the disciplinary function as its sole justification. Of course, the doctrine of formal discipline, as this function is called, is still very generally held by conservative teachers. In another generation, however, it will be one of the educational ideas held only by the backward minority.

SELECTION OF SUBJECT-MATTER

One of the big problems that confront the teacher with respect to subject-matter is its selection. If the teacher has the slightest initiative in the use of textbook or syllabus, she should choose the best from the many possible things she may introduce. How can she decide what is the best? There are a number of criteria that may aid in the selection of subject-matter.

I. BASIS OF MINIMAL ESSENTIALS.

Minimal essentials are those things that are fundamental to the purpose for which the subject is taught. As the term is used commonly, viewed from the basis of general social needs, minimal essentials are the things that every boy and girl should know in a subject. The term is used also in a somewhat restricted sense where it implies the things that are fundamental to the social needs of a particular group of pupils. Even if used with both meanings, the term is helpful. It gives a real basis upon which to select the things that should be taught first in a particular situation. After the minimal essentials have been given, a teacher should present the things that enrich a subject; but not until then.

It is difficult for the individual teacher to determine exhaustively the minimal essentials of a subject. She needs the aid of experts in this work. Prominent educators have been hard at work on this problem, and have presented a few tentative conclusions. Teachers may make use of these results, and in this way lighten the work of such a selection. As time passes, more and more of the public-school curriculum will be surveyed and fundamentals will be determined. Teachers may select the more important things on the basis of their own experience and thus make a start in the right direction, but at the earliest opportunity they

should make use of the careful expert studies that have been made.

A few of the things that have been worked out by experts at present are as follows: In handwriting, studies have determined the amount of time that can be spent profitably in teaching writing, the speed per minute that pupils can attain readily, and the quality of work that can be expected. In language and grammar, experts have shown the kinds of errors people make, and the things they need to know to help them to correct these errors. In spelling, lists of words have been compiled containing all of the words commonly used in ordinary life. These are some of the things that have been partially decided at present. The future will settle many other questions.

II. BASIS OF SOCIAL NEEDS.

In reality, the preceding criterion of minimal essentials is only a phase of the selection of subject-matter on the basis of social needs. Social needs as a whole, however, are much more varied and comprehensive. When a teacher selects subject-matter on the basis of minimal essentials, general needs alone are considered—the needs of all the pupils. When a teacher selects on the basis of social needs, she must be on the watch for variations instead of for signs of uniformity. The school must meet life's needs, and it can do this only by making itself as varied as life.

Social needs change with time. A few years ago a boy was expected to know about horses, electric bells, trolley cars, and telephones. At present it is automobile engines, wireless telegraphy, aëronautics, and military training that are in the forefront of the world's activities. In a few years countless unthought-of inventions will be monopolizing the interest of boys and girls. These are illustrations from recent years. There is no need to multiply them by delving into earlier history. The important thing is that social needs are changing, and the implication is that subject-matter should change with them. Under present conditions the fact that a thing was studied by our fathers is not an all-sufficient reason why we or our children should study it. The social need that brought it into the school may have disappeared long ago.

Social needs vary between different communities. School A may be in an aristocratic American community that has almost perfect command of the form and pronunciation of the English language. School B, on the other hand, may draw its pupils from a foreign settlement that is deficient in both. It would be foolish to place the same emphasis on the different points in the language work for both schools. Each community has its special social needs. In the rural community of Jones Center the boys and girls all expect to spend their lives in tilling the soil and ministering to simple wants. But in La Grande, a suburban section of the city of C, boys and girls nearly all enter business or

professional life. It is the height of absurdity to give the same college preparatory group of studies to both sets of young people. Social needs demand a differentiation.

A still further complication of the problem created by varying social needs is found in the individual variations between different members of the same community. Mary will teach school, if she realizes her present ambitions; John plans to be a banker; Harry wants to be a sanitary engineer; Lawrence must leave school at the age of sixteen to help out at home with his meager earnings; and Florence will keep house for her father when she graduates from high school. These are but a few of the many differences to be found in any community. Should they be met by giving all the same mental pabulum? No—not if the school is to perform its mission.

III. BASIS OF RELATIVE VALUES.

After the social needs of a particular school community have been determined, the next task that confronts the teacher is the selection of the different items of subject-matter that will best meet them. This selection must be on the basis of relative values. Teachers sometimes make the mistake of selecting absolute values instead. Relative values are the values of the facts or items for this particular purpose, while absolute values consider the facts or items in all their possible aspects. Thus, the latter is in reality the sum

total of all the relative values. To illustrate, a certain set of peculiar marks may be very valuable to the printer and proof-reader; another set may be equally important for the rhetoric teacher who must mark English themes; but neither has the absolute value of ordinary punctuation-marks, which are used generally. Each has a high relative and a low absolute value. When the printer says that every pupil ought to learn the marks he uses, because they are very valuable to him, he confuses relative with absolute values.

ARRANGEMENT OF SUBJECT-MATTER FOR TEACHING

The arrangement of subject-matter for teaching is one of the tasks that a teacher must attack if original work is attempted. It is not enough to select the materials. They must be arranged in some desirable order. The main defect of Experience as a teacher is that she does not arrange her subject-matter.

I. RELATIVE IMPORTANCE.

The first criterion for the arrangement of subject-matter is relative importance. Those things that are most important must be chosen first. After these are determined, it is next in order to support them with such details as are essential. When this has been done, items of less importance may be considered until the time for the subject is exhausted.

II. PEDAGOGICAL INSTEAD OF LOGICAL ARRANGEMENT.

One of the greatest faults of beginning teachers is that they often present subject-matter in the same order in which it was presented to them in college or normal school. What was very clear, when presented in detail to mature students who had a background of experience upon which to interpret it, often proves to be most uninteresting when presented to pupils in the public school for their first taste of this particular field of knowledge. These teachers take the logical arrangement of the college class, which, perhaps, was pedagogical for them in their maturity, and give it to their high-school pupils without alteration. The result is easily foreseen. What should be provided is a pedagogical arrangement. This may be secured only by building on the knowledge possessed by the pupils. The only safe procedure is *from the known to the unknown*. Where the pupils know absolutely nothing about a subject, the only pedagogical way to begin is by presenting some phase that will appeal to the eye, ear, or other sense-organ. The traditional plan, which began with rules, definitions, and general principles, is farthest removed from this.

A real pedagogical arrangement frequently is used in the first teaching of geography. The children are introduced to the subject in the form of home geography. They are shown the things they have seen

many times, and are taught to see them from new aspects. Then they branch out to more remote regions, and finally come to the place where they can make their own definitions and other generalizations. In a similar way, some teachers start the science work of the high school by building upon what the children know. This is the general science movement. In a less pretentious manner, many teachers are doing the same thing in other subjects. Things are being connected with life continually, and every subject is full of meaning and significance.

III. AROUND PIVOTAL POINTS.

From the preceding sections it must not be inferred that logical order has no place in the arrangement of subject-matter for teaching. Although it is necessary to build upon what pupils know, it is best that the material have a logical arrangement with that as a basis. This result may be secured by the use of *pivotal points*. By this is meant the selection of topics, which are simple enough for the purpose, around which the facts may be grouped. Most of the better text-books attempt to satisfy this requirement, and teachers will do well to rely on them until they are certain they can do better in some other way.

PREPARATION OF SUBJECT-MATTER FOR TEACHING

I. A thorough knowledge of the subject-matter, as such is usually understood in scholastic circles, is not

sufficient to enable a person to teach satisfactorily. The main reason for this is that this kind of mental grasp of the subject is mainly a mastery of the large fundamental principles. The details that made these principles meaningful when they were first mastered have been forgotten, for the most part. The same details, or similar ones, will be needed to make the principles meaningful to other individuals. When it is remembered that the pupils who are to be taught usually are much less mature than the teachers were when they studied the advanced work that gave them a thorough mastery of the field, another reason for further preparation becomes apparent. Teachers must do more than master the content of a subject to teach it effectively. A thorough scholastic preparation from the point of view of higher education is not enough, but this must be supplemented with a knowledge of many details that have been forgotten.

II. There is an important difference between the kind of preparation needed by the teacher and that needed by the pupil. The pupil is prepared for the day's work if he knows a limited section of the topic under consideration. But the teacher, on the contrary, can not be satisfied with a preparation of this sort. Not only must she be familiar with the details of a limited section, but she must see their connection with what has gone before and what is coming later. It is also helpful if the various relations with other subjects are gathered together for use as needed. Thus, a

teacher's preparation must be broader and longer, figuratively speaking, than the pupils'.

III. As may be inferred readily from the two preceding sections, a *teacher* needs to make constant preparation for her work. This preparation is of two kinds. At the beginning of the year it is necessary for the teacher to make a careful estimate of the main points to be covered in the work, to make a far-ahead preparation. This should result in a sort of skeleton of the course. Sometimes it will be but little more than a survey of the text-book and a calculation of the rate of progress and the topics to be considered. It is a good plan to prepare a calendar of the work for the year. On such a calendar the larger things can be included and omissions made for holidays and other interruptions. With a calendar to guide the work, the teacher will seldom complain, "There is so much to be done yet, and the year is almost gone!" Time and work tend more often to exhaust themselves together.

The other type of preparation is the intensive work necessary to get ready for each day's lessons. It is usually called the daily preparation. It need not be done every day without exception, however, because it is possible for the teacher to get ahead at times, and have an evening or two when other things may monopolize attention; but such times are few and far between in the life of the busy, conscientious teacher. Each lesson demands a careful survey of its materials and an organization for the particular class to which it is

to be presented. It may be that this preparation will occupy only a few minutes each day, but it must be made if the work is to be done properly. When a teacher undertakes to teach a new text-book, one of the fundamentals of the preparation is a careful reading of the book; yet it often happens that teachers go to class for weeks, teaching a new book without knowing its exact contents. In such cases the work of the classroom is certain to suffer. There was a time when teachers did not make daily preparation, when it was thought that a teacher who studied each daily lesson did not know enough to teach. Happily, a time has been reached when it is only the untrained and inefficient teachers who do not make a daily preparation. It is true that this preparation may require only a short time each day for some of the experienced teachers, but it must be made systematically.

SUMMARY

Subject-matter is human experience. It originated in man's needs, but was modified in the schools at times for convenience or for pleasure. In some cases the modifications have produced artificial results. Subject-matter has four functions: the intrinsic, the preparatory, the decorative, and the disciplinary. The selection and arrangement of subject-matter should be mainly on the basis of minimal essentials, varying social needs, and relative values. The arrangement for teaching should be pedagogical instead of logical, and

things should be grouped around pivotal points as far as possible.

A scholar's knowledge of a subject is not a sufficient preparation for the teacher's work. The teacher needs a more extensive and broader point of view in the subject than the pupil, so as to be able to put things into their proper perspectives. The teacher must make a thorough preparation both for the term and for the day.

Suggested Readings

- BOLTON, F. E. *Principles of Education*. Chapter XXVIII. A very clear discussion of the problem of formal discipline, which should be read by those who want to learn the present status of the question.
- BURNETT, T. J. *The Essentials of Teaching*. Pp. 175-186. An excellent discussion of the teacher's preparation, filled with pertinent suggestions and illustrations.
- CHARTERS, W. W. *Methods of Teaching*. Chapters II-VIII. A somewhat theoretical but very complete discussion of subject-matter in its various aspects.
- EARHART, LIDA B. *Types of Teaching*. Chapter I. A good discussion of the origin, nature, and functions of subject-matter.
- NATIONAL SOCIETY FOR THE STUDY OF EDUCATION. *Fourteenth Yearbook, Part I, and Sixteenth Yearbook, Part II*. A complete summary of the important minimal essentials that have been determined.

PARKER, S. C. *Methods of Teaching in High Schools.*
Chapter IV. Devoted to the selection of subject-matter on the basis of social needs and to its arrangement for presentation in the class-room.

Exercises

1. Give examples of subject-matter, taught in the schools, no longer of value in meeting present social needs.
2. What new social needs have arisen that are not provided for by the present curriculum?
3. Give examples of subject-matter that is of value mainly because of its intrinsic worth.
4. Give examples of subject-matter of which the chief value is its preparatory function.
5. What are illustrations of subject-matter that is decorative?
6. Give examples of subject-matter that has been offered a place in the curriculum chiefly because of its supposedly disciplinary value.
7. Analyze the social needs of two different school communities by examining the occupational census as presented in the last United States reports.
8. For what social needs does the high school in your community provide? Are there any others?
9. What are the things that must be considered in arranging subject-matter pedagogically?

10. Why are not great scholars and authorities in a subject always good teachers?
11. Why is it that teachers frequently say that they learned more about a subject when they taught it than when they studied it as pupils?
12. When will a teacher no longer need to make daily preparation for the teaching work?

CHAPTER IV

OUTCOMES OF TEACHING

WHEN a person sets out on a journey and knows exactly where he is going, he can provide himself with the necessary equipment. If the destination is not foreseen the provisions for the journey may be inadequate. This analogy applies to the teacher. When a teacher begins the intellectual journey necessary to instruct a group of pupils, it is a great saving of energy if the changes that are to be made in their minds are foreseen. Knowing just where she is bound intellectually, the teacher can make adequate provisions for proper teaching equipment. The analogy holds still further. Some people travel with wardrobe-trunks, some with hand-bags, and some carry their belongings in a shawl-strap. All arrive at their destinations, though in various stages of enthusiasm and fatigue. In like manner, some teachers use the best methods, while others use those less well adapted; but all produce changes in the minds of their pupils, though with more or less mental friction. All travelers who can ride in parlor cars with adequate baggage facilities, and teachers who are able use those teaching methods that are best suited to the results desired. That a teacher

may know what method to use, it is necessary for her to know whither she is bound. This necessitates a consideration of the outcomes, or results, of teaching.

TYPES OF OUTCOMES

The outcomes of teaching may be classified best by using a rough psychological grouping. It is always difficult to classify natural phenomena, because such do not lend themselves readily to hard-and-fast lines of demarcation. Consequently, the classification that is given may seem arbitrary and inadequate. Its use, however, will aid in determining the teaching methods best suited to secure the best teaching results.

I. KNOWLEDGE OUTCOMES.

A. *Facts.*

One of the most frequently secured outcomes of teaching is what usually are called facts. These are items or bits of knowledge, such as, "Birds are animals," "George Washington was our first President," and similar simple ideas. Often they are isolated and unorganized. When they are arranged in a logical order, they tend to merge into the following types of outcomes:

B. *Concepts.*

The concept is nothing more than the mental result of a consideration of many related facts. Thus, the concept that is expressed in the definition of the idea,

verb, is formed by bringing together the common characteristics of words like *run*, *throw*, *fall*, *build*, and *shout*. Every noun, when it has a real meaning, is a concept; likewise, every adjective or modifying word may be so classified. Concepts are a very frequent result of the teacher's work, but although these concrete outcomes are most familiar they seldom are recognized as implied by the term concept. This term, as ordinarily used, sounds forbidding to the average person, because he is looking for something abstract. Concepts are as concrete as general meanings. They are formed from details, but when they have been acquired the details may be forgotten. Every time the teacher makes anything meaningful she is forming a concept.

C. *Generalizations.*

When the concept is of a more or less abstract nature, it is designated usually by the more familiar terms generalization, rule, or law. Teachers have recognized these outcomes in the past as one of the important objectives of their teaching endeavors. At times, even, it seemed as if this were the main task of the teacher. At present, however, it is recognized that a rule or principle is not sufficient in itself, but that it must be backed up with rich meanings. Thus, it is not enough to give the rule, "Invert the divisor and multiply," in teaching fractions; but the rule must be illustrated by a number of concrete examples. In another field, that

of rhetoric, the teacher can not stop with a mere formal statement of the principles governing "unity" or "style," but must give numerous illustrations to make the points clear.

D. Mental Attitudes and Methods of Thought.

The most comprehensive knowledge outcomes that result from teaching are what may be called *mental attitudes* and *methods of thought*. People who are uneducated are inclined to accept things at their apparent face values. They form hasty conclusions and are misled by all sorts of shams. The attitude of mind that induces a person to weigh the evidence and search for possible inconsistencies before forming conclusions is acquired only through much practice along this line. Other attitudes, such as following things through to their logical results and always verifying before taking the next step, come through training. These outcomes are the consequence of a thorough organization of many facts, concepts, and principles. They are serviceable in the light of much such training, but it can not be assumed that the mere possession of information will guarantee the right mental attitude. Often the mental attitudes must be cultivated also. Therefore, teachers must seek these outcomes consciously.

The need for outcomes of this general nature has impressed itself so strongly upon some of our educators that a most unusual departure from the traditional content of instruction has been attempted in the Army

Schools of the Education and Recreation Branch. The men who have joined the army to learn a trade are, as a rule, in need of general education as well as of vocational training. The time for instruction is very limited. As a result, their instructions in general education is restricted to one hour devoted to the basic course in citizenship and another hour in English instruction. The problems of citizenship have been analyzed in a manner that has produced remarkable results along social and economic lines. The inculcation of sane attitudes has been the key-note of the entire course in citizenship, and the traditional materials of the school curriculum have been gone over for materials that bear upon these problems. The amount of material taught in our common schools that has been discarded under this plan is almost inconceivable.

II. DRILL OUTCOMES.

A. *Habits.*

The first type of the drill outcomes that will be considered is habit. Habits are actions that have been learned, but that go on automatically, once they have been learned, whenever the proper stimuli are presented. When things are done from habit, no thought is necessary, and the individual is free to give his thought to other things. Many habits are formed in the school-room, such as holding the pencil in a certain way, raising the hand to attract the teacher's attention,

sitting in a particular posture, and forming the letter *a* with a definite movement. Habits are so numerous that it has been said that children are bundles of them. Each is formed by repeating an action a number of times in precisely the same way each time.

B. Rote Associations.

The second type of drill outcomes is rote associations or rote memory. Rote associations are like habits in that they are formed in the same way—by repetition. They further resemble habits in that when they have been formed they no longer demand thinking. Rote memory is used in everything that demands an exact reproduction, as the number facts of the multiplication table, a memorized poem, and the learning of definitions and rules. In some cases a thorough understanding of the thing may be an important aid in learning it by rote. This class of outcomes should always be sought when anything will be needed so often that time will be saved by memorizing it. It takes much more energy to think than to give things from memory.

III. EMOTIONAL OUTCOMES.

Teaching in the past has been mainly a coldly intellectual process in so far as any definite teaching program was concerned. Teachers imparted knowledge and drilled, but never planned to influence the emotional side of the lives of their pupils. To be sure, it

was hard for teachers to live and not influence the emotions of their pupils, but the emotional changes that resulted were purely accidental. It is not necessary to leave the training of the emotions so completely to chance. The emotions may be trained as surely as habits may be formed. The first step in the process of securing emotional outcomes is to recognize the various kinds that may be secured.

A. Ideals, Sentiments, and Prejudices.

One of the important tasks in the field of the emotional that confronts the teacher is the development of ideals. Such ideals as honesty, industry, thoroughness, neatness, charity, and altruism must be inculcated by the school, because our homes are too busy and too varied in character to do the task themselves. In some cases, even, the homes are entirely unfitted for this responsibility, because improper ideals are present. Similarly, the school must do its part by teaching the best sentiments and prejudices. The right sort of patriotic attitude may be an ideal, but it is more often a sentiment. Prejudices are usually thought of as undesirable; yet they may be strong factors toward bringing about right conduct. We think of prejudices only when the other fellow has a point of view, to which he adheres strongly, which is contrary to ours. Yet we are prejudiced as much as he. Information about a line of action, backed up by a strong emotional coloring, constitutes a prejudice. Thus, one person

may believe that the Sabbath should be observed on the first day of the week, while another may worship on the seventh. Both have prejudices in this respect. Again, a person may think that a man ought always to give up his seat if a woman is standing. This is another prejudice, even though a valuable one under American standards. It is so customary to think of the prejudices of the other fellow that it is not recognized that there are both good and bad prejudices. The school should cultivate the good ones. Ideals, sentiments, and prejudices must be led into the right channels if we are to have the best social organization.

B. *Appreciation and Enjoyment.*

Another task from the emotional field for the teacher is the guidance of appreciation and the development of right standards of enjoyment. Children must be taught to appreciate literature, pictures, and artistic work; in fact, beauty wherever it is to be found. It is not enough merely to present objects for appreciation and enjoyment and expect the desired results to follow. The teacher must work to secure these emotional outcomes. Careful, systematic teaching does wonders in raising the standards of appreciation and enjoyment of a group of pupils. In the endeavors of the school to provide for the leisure side of our American life, appreciation and enjoyment must occupy a more important place in the future.

IV. PRACTICAL ABILITIES.

The teacher often is criticized because her work is apparently impracticable. Her teaching is devoted almost entirely to the theory of the thing, and people do not see how some of the theory is to be of use. Present-day teachers are placing more and more emphasis on ability to use what is learned than was the case in the past. Some important outcomes of this kind may be recognized.

A. *Expression.*

Children are taught to express themselves in many ways in the class-room. Probably the most important of these is secured in connection with the language work. The pupils are taught to put their ideas in the conventional garb of good usage, and are exercised constantly on this. This outcome of teaching has been recognized by most teachers in the past, and the chief problem that remains here is the one arising from method. How can pupils be taught most efficiently to express themselves in good English?

Other phases of the teaching of expression arise in connection with painting, drawing, music, manual training, home economics, and dramatization work. Each of these presents its own problems and difficulties. One of the aims of the teaching of each, however, is to get the pupils to express themselves a little better than they could without training.

B. *Ability to Study.*

Out of the increased emphasis that has been given to efficiency in teaching has come a recognition of the fact that pupils often do not know how to study even by the time they have almost finished the high school. The result is that teachers are emphasizing a new outcome of their work—ability to study. There are many devices and hints to aid in studying, and pupils must be taught these if they are to be efficient. It is a great gain for a person's life, after school-days are over, to be able to get the exact meaning from what some one else has written. This is the essential element of ability to study. Consequently, this is an important practical outcome of teaching.

C. *Development of Individuality.*

The school in the past often has seemed to try to repress the individuality that a pupil might have, and thus make him like the rest. Of course, this is a function of the school when individuality tends to express itself in undesirable forms. But there are phases of individuality that can and ought to be developed, such as originality, resourcefulness, and the other characteristics of a useful personality. These phases of a pupil's life need cultivation as well as the purely intellectual sides. Therefore, they should be among the outcomes of teaching sought.

D. Moral Development.

The fourth major phase of the practical-ability outcomes of teaching is moral development. Our schools, in the past, have done much to bring about a good moral growth along some of the lines of personal morality, such as industry, persistence, promptness, and thoroughness. Some of the moral virtues, especially filial piety and chastity, have not been emphasized much, however, and a broader work is needed. In the field of social morality the work of our schools has been even more deficient. This is one of the important outcomes that will be emphasized more in the next few years if present indications are a criterion.

**NERVE MODIFICATIONS AS THE BASIS OF
OUTCOMES**

The modifiability of the nervous system furnishes the psychophysical basis of teaching outcomes. Drill outcomes are possible because nerve-cells, which are made to act together a number of times in exactly the same way each time, tend to act together with but little effort later. Knowledge outcomes have their basis in the fact that human experience tends to become unified in the nervous system, those elements that are related in meaning becoming fused. Emotional outcomes also have a nervous basis, but it is not so well understood. It probably is founded on the well known

fact that nearly all experience is retained, which retention makes possible its later revival. Many experiences have emotional colorings, which are stored in the nervous system along with the experiences themselves and reappear when they are reinstated. All of the possibilities of the nervous system seem more or less involved in securing practical ability outcomes. They can not be restricted to one phase of nerve action, even to the limited extent that is possible with the other outcomes.

RELATION OF OUTCOMES TO TEACHING METHOD

There would be no advantage in making a detailed analysis of the outcomes of teaching if these were not related to the teaching process. But, since each outcome may be secured best by a particular teaching method, a consideration of outcomes merely gives a basis for the study of the details of method. Thus, the drill outcomes are secured most easily through drill exercises; the knowledge outcomes through induction, deduction, and similar teaching; and the emotional outcomes through the appreciation lesson. In the differentiation of these teaching methods the teaching process has made much progress on the art side. Some of these methods are subtle, however, and it takes much time and patience to master them to the point where they can be used effectively. It is possible, too, that some of them may be so exacting in their intellectual requirements that many teachers can never surmount

the inherent difficulties. Such limitations of the methods as seem to exist will be considered as each is presented.

SUMMARY

Teachers need to be able to classify the outcomes of teaching in order that they may realize the goals for which they strive. These outcomes may be classified into four groups: (1) knowledge outcomes; (2) drill outcomes; (3) emotional outcomes; and (4) practical ability outcomes. The knowledge outcomes may be subdivided into (*a*) facts, (*b*) concepts, (*c*) generalizations, and (*d*) mental attitudes and methods of thought. There are two main kinds of drill outcomes, habits and rote associations. The emotional results may be divided into (*a*) ideals, sentiments, and prejudices, and (*b*) appreciation and enjoyment. The practical-ability outcomes include (*a*) expression, (*b*) ability to study, (*c*) development of individuality, and (*d*) moral development. The possibility of securing these outcomes is dependent upon the modifiability of the nervous system. Each type of outcome may be secured best by the method designed for that teaching result.

Suggested Readings

EARHART, LIDA B. *Types of Teaching*. Chapters II and III. The outcomes of teaching and their relations to the types of class procedure that are best to secure them.

PARKER, S. C. *Methods of Teaching in High Schools.*
Chapter V. A brief classification of the types of
learning involved in high-school subjects.

Exercises

1. Give concrete illustrations of each of the types of outcomes presented in this chapter.
2. Visit class-rooms, and note the kinds of outcomes secured by the teacher.
3. Which outcomes are secured most frequently by the algebra teacher, by the geometry teacher, by the physics teacher, by the history teacher, by the Latin teacher, by the English literature teacher, by the rhetoric teacher, by the physiology teacher, by the geography teacher?
4. What outcomes should a teacher strive for in teaching the early colonial settlements in United States history, in teaching "The Star-Spangled Banner," in teaching the conjugation of *amo*, in teaching the binominal theorem?
5. What is the main defect in the work of the teacher who always has the same teaching procedure for every day in the school year?
6. Why is it desirable to be able to analyze the outcomes of teaching?

CHAPTER V

THE FORMAL CLASS PERIOD

BEFORE the special teaching methods are examined, it will be well to consider the formal class period and the activities to which it is devoted generally. Under most conditions the work of the school-room is much the same from day to day. Teachers adopt a few devices that make the work go in a fair way, and rest content with the results. Often they are too busy with the routine things to find time for anything new. In some cases, it is thought, they are too indolent to make the attempt to learn new methods. Whatever the reason, the fact remains that most formal class periods are concerned with little beyond the acquisition of the contents of the text-book or syllabus. This may be done in a way that is very profitable. Therefore, those activities that are common to most class periods will be given the first consideration.

I. ASSIGNMENT.

Under conditions generally prevalent in American schools text-books are the chief media of instruction. Their use involves the assignment and study of lessons.

The first point for consideration among the activities of the formal class period, then, will be the assignment.

A. *Functions.*

1. The assignment must *point out clearly* to the pupils just *what* is to be done. Where it does not do this, pupils often waste time on things that are not necessary for the day's work. Sometimes a hazy assignment will result in pupils trying to do work beyond their capabilities. On the other hand, hazy assignments often give the class a chance to come to the recitation but partly prepared. They "couldn't find this or that reference"; "You never told us to do that"; such are the responses a teacher often receives who has not been clear in her assignments. Sometimes classes deliberately loaf. When this is the case, the teacher often can throw the responsibility back upon the guilty ones, if a few members of the class have done the work. The fact that some of them did the work is *prima facie* evidence that the assignment was made. Those who missed it have no one but themselves to blame for their carelessness, and ought to suffer the consequences.

2. The assignment may be clear and yet fail because it does not tell *how* the work is to be done. There often are obstacles to the preparation of the lesson, which might be removed by a little assistance. This assistance should constitute a part of the assignment.

3. The third function of the assignment is to give

the pupils reasons *why* they should do the work. This is what is usually known as motivation. A simple form of motivation occurs when the teacher shows that there is a need for the particular information contained in the day's lesson. Sometimes it will be sufficient for the teacher to remark, "You will need to know this when you do so and so." At other times a sufficient motive will be given by the raising of the problematic situation. "To solve the problem, it will be necessary to master this particular piece of work." With most pupils, even those of the senior high school, motives are much more effective if not too remote—not too far in the future.

B. Time to Make the Assignment.

The only hard-and-fast rule that can be given about the time to make the assignment is one that is negative. It should never be made so late in the class period that it can not be completed properly before the class is dismissed. Nothing is more conducive to poor assignments than the practice of some teachers who wait until the bell rings for dismissal and then make hurried assignments. To prevent this from happening, some teachers always make the assignment at the beginning of the hour. A uniform procedure of this kind is not best, because unexpected events may arise in the class period that make it expedient to modify the work for the next period. In general, however, if a uniform time is adopted, it probably is best if set at the beginning

of the period. Motivation often makes it desirable to wait until the recitation has made some progress. The teacher who has mastered the art of assigning lessons makes the assignment near the beginning of the hour, as a rule, but is always ready to meet the emergency by a temporary readjustment.

C. *Length.*

The amount of time that should be taken in assigning a lesson depends upon the situation involved. The assignment in which the pupils are told to study "From page 97 to page 104" is the most difficult for the pupils that a teacher can make. Of course, the lesson may be one of a series of similar tasks, and in such a case the pupils may need no further directions than the pages covered. The page assignment is the ideal one toward which a teacher should strive, but it can not be used every day throughout the school year, if the pupils are to be assisted as unusual lessons often demand. It has the advantage of definiteness, but lacks motivation and does not tell how the new work can be done best. Whenever a new topic or a new phase of the work is encountered, there is need for a complete assignment that will remove obstacles and give the right kind of motive. In some cases, where it is necessary for the teacher to develop a term or concept, the entire period may be given over to the assignment of the lesson; or, in rare cases, more than a period may be required. A teacher's most effective work is often

done in making the assignment, and she who never makes a detailed, motivated one is neglecting a chance to do the best kind of work.

D. *Method.*

There is no one method that can be used always. The method must be suited to the lesson's subject-matter. When the different teaching methods are considered in detail in the following chapters, the forms of assignment that are the natural sequence of the different steps will be given. As long as page assignments are used, but little method is involved; but when a teacher attempts to prepare the pupils for their study, and tries to motivate the work, method becomes very important.

II. RECITATION.

The second main activity into which the formal class period divides is the recitation. Under most conditions, the time that is not used in making the assignment is given over to the class recitation. This exercise is very important in most schools, because this is the time when the real teaching is done. Some educators have proposed to eliminate the recitation as something not needed. To do away with the recitation will be to lose many of the advantages of group thinking. The introduction of group thinking into the work of our schools is too great an advance to be sacrificed unnecessarily. The recitation can be modified to meet

the criticisms without losing its advantages. The various points will be clearer after the topic has been considered in its different aspects.

A. Functions.

1. **A check on the assignment.**—The recitation is intended primarily to serve as a means of ascertaining whether the pupils have performed the tasks set for them in the assignment. Pupils seldom do serious, careful work in the study period unless there is a faithful checking up at frequent intervals to see what has been done. In addition to finding out whether the allotted tasks have been completed, the recitation gives an opportunity to learn whether the assignment was adequate. If pupils reveal a misunderstanding of what they were told to do, it is a reflection on the assignment. If they come to the recitation in a half-prepared state, they were asked to do too much, were not told definitely what to do, or were not prepared to do it by the preceding work. There may be exceptions to this classification, but a situation of this sort indicates something in need of readjustment. In these various ways this part of the formal class period acts as a check on the assignment.

Some teachers seem to think that the function of the recitation that has just been discussed is the only one. Day after day the entire period is spent in checking up to see that the pupils have their lessons. Sometimes, to be sure, the teacher is hard pressed to fill in

the time in this way, but it is done in some manner. Teachers in all subjects are offenders along this line. The mathematics teacher asks the pupils to recite on the problems they have studied at home; the Latin teacher does nothing but send the class over the twenty lines of Cæsar that constituted the study lesson, securing details of translation; the geography teacher asks questions that require no other answer than the words found in the text. Furthermore, many of our present-day text-books in the public schools are so rich in content that the teacher has a hard time to teach them without going into detail in this way. Such work, however, neglects one of the most important purposes of the recitation—that of organizing the lesson content.

2. **A time to organize the lesson content.**—The recitation offers the best time for this. Nothing seems to surpass group gatherings for sane thinking, where mind responds to mind and opinions are exchanged freely. When led by a skilful teacher, the class-room is an admirable place for the organization of the lesson content in this way. Problems are raised, and each pupil offers his bit to the final solution. In this thinking, however, it is possible for the teacher to do too much of the work. The pupils must have a chance to share in it, and the thought movement must be slow enough to adapt itself to their immaturity. Further, the lesson must be logically organized and connected with other material if it is to be remembered well.

3. **Introduction of new materials.**—In addition to

the two preceding uses, the recitation offers an opportunity for the introduction of new materials. Ideas contributed by the teacher or pupils always have an added interest in the personality of the one who offers them. Many times the text-book is not designed perfectly for the needs of the particular school in which it is used. In such cases supplementary materials are very helpful. When pupils are the contributors, the pleasure they get out of the situation often is more valuable than what is offered. Materials offered by the pupils may need amplification or correction, and the recitation offers a chance to do this.

B. *Forms of the Recitation.*

1. **Mere reproduction.**—When the first function of the recitation is much emphasized, the form that results is usually nothing but the reproduction of the text-book. Sometimes this is a *verbatim*, word-for-word reproduction. At other times it is an unorganized account of the lesson. It hardly seems conceivable that, under present teaching conditions, children would be asked to memorize the exact words of the geography, history, or physiology text; yet the writer has known of teachers who, in recent years, have taught in this way in rural schools. It was the prevailing method of one hundred years ago, but is so wasteful that it ought to have been abandoned long ago. The unorganized reproduction in the pupils' own

words is quite an advance over the *verbatim* form, but it is rather inadequate.

2. **Topical.**—The topical recitation is a marked improvement over the preceding form. It gives the opportunity for a logical organization of the lesson materials, which is wanting in a purely reproductive recitation. This is true especially when the outline followed is the product of the effort of the teacher and pupils. When the recitation does nothing but reproduce the list of topics given in the text, it is of less merit. In any of its degrees of perfection, however, this recitation form always emphasizes organization, and that is a point of much merit.

In the topical recitation an outline must be prepared beforehand. The recitation then may be conducted by referring to the outline for topics. When a group of pupils is assigned the task of preparing the outline for the next day's recitation in their study period, it has been found to provide them with valuable training. The plan is sometimes used as follows: When a satisfactory outline has been formed by the pupils and approved by the teacher, it is copied on the blackboard in the recitation-room where it may be used. By apportioning the task of making the outlines among different groups, the spirit of rivalry and competition tends to enliven the work. Further, the pupils learn the value of coöperating with one another. As has been suggested, these outlines are the basis of the reci-

tations. When the class is called for the regular work, the teacher requests a pupil to take the first topic. If this pupil completes it satisfactorily, another takes up the next. If the work is not what was expected, teacher and class supplement it before proceeding to the next topic. After a few weeks of this work pupils learn the value and the method of organizing lesson facts.

3. **Question and answer.**—When the recitation is conducted by question-and-answer methods, its possibilities are limited only by the lesson material and the ingenuity of the teacher. In quality this form of recitation varies from the very best to the most mediocre. Its degree of excellence depends almost entirely upon the phrasing and distribution of the questions. To handle this work satisfactorily a teacher must think rapidly and clearly. These qualities are inborn to a large extent. Hence it will be true always that ideal questioning will be found rarely in the complicated situations of the class-room, with its many rapid thought changes. A number of the features of questioning frequently become habits with teachers. Therefore it will be profitable to dwell at some length upon the various phases of questioning in order that the right habits may be initiated by those teachers who read this chapter and who wish to form them.

a. **Purpose of questions:** In the ordinary activities of life, people usually ask questions to secure information. In most cases this requires only the simplest

interrogative sentences. How far is it to B? Which road leads to the bridge? How much is this calico a yard? Do you think it will rain? Where is my rain-coat? These are typical of the questions of every-day life. In the school-room, however, in addition to such simple questions as seek information, teachers use thought-provoking types. In fact, the main purpose of the question in the recitation should be to provoke thought or to raise a problem. The trouble with the mere information-getting form is that no one is really interested in the answer contained in the text-book, for nearly every one knows it. One of the main aims of the question-and-answer recitation is to stimulate interest and bring about a new organization of the lesson facts.

b. Social nature of the recitation: In contrast to the questions of private life, which are addressed usually to one person, the questions of the class-room are addressed to a group. The good question provokes thought effort on the part of every member of the class. In other words, in the school-room questions are social, while in private life they are individualistic. Outside of the class-room, when one person has not been talking to another and desires his attention, he always prefixes his name to the question. In the school-room, the social nature of the process requires that the name come last. If the questioning of the school-room is to realize this social ideal, it can never be conducted in a routine order, where the pupils know before the

question is asked who is to give the answer. Asking questions in a fixed order often results in lifeless reciting, with the pupils preparing lessons only when they think they are scheduled to recite.

c. Form of questions: The older books on questioning sometimes said, "Never use questions that can be answered by 'yes' or 'no' "; but such a rule is arbitrary. Sometimes a question that demands a definite affirmative or negative answer may be used very effectively. It commits the pupils to a point of view, which they may be called upon to defend later. The indiscriminate use of leading and "yes" and "no" questions that are not followed up with analyzing questions leads to guessing. This is to be condemned as a general practice.

The question must have a form that will bring about the thought development at which the teacher aims. It must be framed to meet the particular class situation in which it is used. This is true especially of the simple questions that round out the thought of the pupils' responses when they are deficient. Pupils often can answer the questions more easily if a few introductory remarks are made by the teacher as a setting for the question. In doing this, however, the teacher should avoid the form in which the question is appended at the end of a lengthy declarative statement; as, "Having examined the dandelion floret under the microscope, what did you find?" Teachers who

have difficulty in asking questions will find it helpful to write out a few main questions when they prepare the day's work. An outline of the lesson is another aid to effective questioning.

d. Number of questions: Some teachers ask too many detailed questions. They deal with petty facts all of the time, and never touch the important things. Where a lesson is on material arranged in topical form in the text-book, there need be but one real question for each topic. The number of questions that should be used depends upon the kind of lesson being taught, and no arbitrary regulation can be laid down for all situations. The tendency of most untrained teachers is to use too many questions. It is difficult to get the pupils to recite at length at first, but they soon learn to do it. Pupils usually try to give the teacher what she wants, unless what is desired is entirely beyond their abilities, and if a teacher persists in requesting topical recitations she will get them in time.

e. Characteristics of good questions: A well known writer on the technique of teaching gives the following as some of the characteristics of good questions: "1. Questions should call up associated facts. 2. They should not be ends in themselves, but should carry the thought forward. 3. They should not be so indefinite as to permit of guesswork. 4. They should be interrogative in form, not declarative in all but the final word. 5. They should bring out the subject-matter in

the order of dependence, or logical relationship, if such exists." ¹ These points sum up most of the characteristics of good questions, especially when considered in the light of the preceding discussion.

f. Distribution of questions: The questions should be distributed among all the pupils of the class. It is seldom a good plan to call upon one part of the class so frequently as to neglect the rest. The pupils at the edge of the class are liable to be neglected by some teachers. Others have a tendency to overlook those in the back or the front of the room. Whenever a teacher discovers a tendency of this nature and realizes that some of the pupils are being neglected, it is well for her to adopt some device that will remedy the evil.

Although the questions should be distributed throughout the class, this distribution should not be indiscriminate. Attention must be given to individual differences, and questions should be within the capabilities of the pupils called upon to answer them. Further, memory questions may be answered quickly, but thought questions demand much time. Sometimes recitations are conducted so rapidly that only about one fifth of the pupils really have time to think out the answers. Teachers must allow time enough for adequate answers, but must not delay the whole class unreasonably while the slow pupil takes time to think out his reply. There is a happy medium.

g. Pupil answers: Teachers must require the pupils

¹Lida B. Earhart, *Types of Teaching*, p. 100.

to attempt to answer the questions that they ask. Pupils enjoy getting the teacher off the lesson topic, when permitted to do so. Teachers who have this failing are sometimes led astray systematically by their classes. This situation is entirely under the teacher's control, and is checked readily by demanding answers that stick to the topics under discussion. Pupils who systematically "bluff" do so because the teacher is deceived thereby, or appears to be.

Teachers must not get into the habit of undue commendation of pupil answers. A simple "Yes" or "Good" is all that the average reply should evoke. Even the most meritorious answer need not be commended especially, because the knowledge that they have answered difficult questions correctly is reward enough for most pupils. The silent admiration of classmates is often more effective as commendation than anything the teacher may say. In like manner, reproof should be used but sparingly. It is so easy to overdo this that it is safe to say that nine tenths of the pupils should never have any serious reproof. The fact that their answers are incorrect is enough. If praise is overdone, it does not seem to do much harm to the pupils, though it tends to lessen the influence of the teacher; but too much censuring is disastrous, because it arouses enmity and develops antagonism.

The teacher should never form the habit of repeating pupil answers. There are times when it may be neces-

sary to repeat the answers for emphasis, or to make those in a distant part of the room hear; but each repetition should be a conscious act of the teacher, and not the result of habit. Neither is it a good plan to make a practice of repeating questions for pupils who fail to catch them.

4. *Pupil reports.*—The fourth form of the recitation that will be considered is that in which the time is occupied with pupil reports. In history, geography, literature, and some of the other subjects, occasions frequently arise when supplementary information is desired. When suitable sources are available, the pupils may bring this material to class in individual reports. There are a number of advantages and disadvantages in such recitations.

Pupil reports are always motivated. The fact that a pupil brings to class information that no one else knows gives him a real incentive for good work. When every one knows what is recited, there is little interest in what is said; but when the facts are entirely new, attention is spontaneous. Pupil reports enrich the lesson without much extra work on the part of the teacher. It is much less fatiguing for the teacher to supervise pupil reports than it is for her to gather the material and present it herself. The teacher must not allow the reports to be unsupervised, however, for they need careful attention. As far as possible, the teacher should be able to supplement the recitations at every
ge. The best work will be secured when the teacher

is so well prepared that she can give the reports better than the pupils, if necessary. This thorough preparation will command respect, which will be reflected in a high grade of pupil work.

Pupil reports tend to review things that have been presented earlier. The partly familiar facts are presented in a new light. Pupil reports are of value, also, in furnishing another point of view from which to determine the capabilities of the class members. When pupils stand before their fellows, they go through a different test from that of the ordinary recitation. Individual differences become more noticeable. Sometimes such work reveals pupils who are unusually capable but who do not measure up to their possibilities in the ordinary work. In other cases, the work before the class may explain why poor work is done every day, why the pupil never does well in examinations or in anything else.

The chief drawback to pupil reports is that they often lack the proper organization to make them very effective. The materials are presented in a way that leaves nothing clear. The reports should be carefully organized beforehand. Often it is time well spent for the teacher to consult the pupils before class and go over the outlines and the recitations with them. When the reports are given, the remainder of the class should have a copy of the outline for reference and should take notes upon what is given. At its close they should be encouraged to ask questions until all difficulties have

disappeared. Pupils give close attention to reports if they are called upon to give a summary of them.

Closely related to pupil reports is the practice of encouraging pupils to bring in lists of unanswered questions in the lesson. These furnish the materials for valuable discussions. Pupils develop skill rapidly after a little practice in this work.

C. Characteristics of the Good Recitation.

The chief characteristic of good recitations is the presence of thought-organizing activities. Whenever a real thought development is present the pupils will be interested. To secure this condition of affairs it is necessary to use supplementary materials when they are pertinent to the lesson. A ready use of good supplementary facts in content subjects especially, always adds zest to the recitation and is very helpful.

The good recitation, moreover, is not a pure form as has been explained in the preceding pages. The materials that are covered in the class period often do not lend themselves to one form. The skilful teacher will use a mixture of the forms as they fit the subject-matter. This is true especially when the various special lesson forms which are discussed in later chapters, are taken into account. The fact that a teacher has used nothing but the topical form or the question-and-answer form of recitation in a period is no reason for saying that she has done the highest grade of work. It might have been better to combine the two. In any

case, it is well for the teacher to know which form is being used.

Another important characteristic of the good recitation is that it checks up all points assigned to the pupils for which they ought to be held definitely responsible. This phase is essential to the recitation.

III. SPECIAL TEACHING FORMS.

The uses of the formal class period that have been described thus far are about all that are found in the work done by many teachers. The artists of the profession, however, use special teaching forms, which are more certain to secure the various outcomes of teaching that have been analyzed in the preceding chapter. In using these forms the teacher breaks away from the text-book or syllabus, and reorganizes the materials so that they may be presented more effectively. Some of these teaching forms might easily be regarded as variations of some of the recitation forms, but it is better to consider them from the point of view of the outcomes that they secure. They all take the time of the formal class period, sometimes monopolizing both recitation and assignment. They have been enumerated briefly at the close of the preceding chapter, and will be presented in detail on the following pages.

SUMMARY

The formal class period usually is divided into the lesson assignment and the recitation. The lesson as-

signment should tell the pupils just what they are to do, how they should do it, and why it is necessary. The assignment may be made at any time in the class period, but should not be made so late that it is hurried. Enough time should be given to it to do it properly. The method depends upon the lesson subject-matter.

The recitation should check up on the assignment at all necessary points, should help to organize the lesson content, and should introduce and evaluate new material. The merely reproductive form of the recitation has the least value. The topical form is good for certain kinds of subject-matter. The question-and-answer recitation is the best, when properly conducted.

Questions are intended to provoke thought in the class-room. They are addressed to a group, and must be formed and distributed with this in mind. The form of the question must be determined by the setting in the class, though a few forms should be avoided as far as possible. The number of questions to be used is determined also by the class setting. Questions should be so distributed that they will reach all the class. The answers of the pupils should be pertinent to the questions, and should not be repeated habitually by the teacher.

When the recitation takes the form of pupil reports, it makes use of the motivation that is present when a pupil has something new to give to his fellows. Pupil reports often are unorganized and fail to be effective.

The good recitation is characterized by the presence of thought-organizing activities. It often is not a pure form, but combines several forms.

Suggested Readings

- BAGLEY, W. C. *The Educative Process*. Chapter XXI. A clear presentation of the assignment and the recitation in their various aspects.
- BURNETT, T. J. *The Essentials of Teaching*. Pp. 107-117. A good exposition on the use of the question as a teaching aid.
- CHARTERS, W. W. *Methods of Teaching*. Chapter XVIII. A good chapter on the use of questions.
- EARHART, LIDA B. *Types of Teaching*. Chapter IX. A complete presentation of the recitation and its various forms.
- HARVEY, N. A. *Principles of Teaching*. Chapters XIV and XV. A readable discussion of the various phases of the recitation.
- STRAYER, G. D. *The Teaching Process*. Chapters X and XI. Some good suggestions are given, which should be of help in questioning and in conducting recitations.

Exercises

1. Prepare assignments for lessons in different school subjects, and include the three essentials of a good assignment: what, how, and why.

2. In what lessons or school subjects have you had, or do you think you would have, difficulty in providing good motivation?
3. When might it be necessary to make the assignment at the close of the class period?
4. When may the assignment be very brief?
5. When could a teacher expect the class to reproduce the exact words of the book?
6. How can you tell whether a pupil understands what he recites, when he gives the words of the book?
7. What is the behavior of a class when the teacher is conducting the recitation in a way that organizes the thought of the lesson? What activities are present and what absent?
8. Visit class-rooms and note the forms of the recitation that predominate under different conditions.
9. Write out a list of ten questions that could be used as thought-organizing questions in teaching a lesson.
10. Visit class-rooms, and record as many questions that the teachers use as you can. Notice any bad habits that the teacher may have. Classify the questions after your visit is completed.
11. How can the pupils be induced to recite to the other members of the class instead of to the teacher?

12. What reasons can you suggest for dull and uninteresting recitations?
13. When is it necessary for a teacher to ask questions that deal with the minute details?
14. When is it most valuable to use topical questions?

CHAPTER VI

IMPARTING KNOWLEDGE

THE most important task that confronts the teacher in the junior and senior high schools is the problem of presenting knowledge in such a way that the pupils actually acquire it. There are fundamental habits to be established, and feelings and emotions to be imparted; but the pupils spend more time in learning facts and other forms of knowledge than in all other activities put together. This is a reason why the knowledge phase of teaching is considered so essential. It is the reason, too, why in the past teaching has been primarily a purely intellectual process. Knowledge is imparted to most pupils if it is merely kept before them systematically. This explains why pupils have been so successful in acquiring information in the past. Although most teachers knew little or nothing about the fine points of the educative process a few years ago, this deficiency did not prevent their efforts from being fairly successful. By keeping the information before their pupils they secured very gratifying results.

In contrast to this empirical method, it has been

shown many times that an organization of knowledge which is based on the laws of the mental development of the child—an application of the fine points of teaching—is more effective. Of course, it takes a certain mental alertness to be able to present information in these artistic ways. Because of this, some people are limited in their teaching efforts mainly to keeping the information before their pupils. This does not mean that the teachers who are more capable should not become skilled in the finer points of the technique of teaching. Some educators have been confused on this point, and have failed to see the value of these special teaching methods because they, or some of their students, never learned to use them. These artistic methods are of value, and some of them are not very difficult. The simplest method for imparting knowledge—type studies—will be considered first.

I. TYPE STUDIES.

A. *Nature of.*

When a teacher makes use of the type-study method of imparting knowledge, a typical case of the thing to be studied is taken for a detailed examination. Content studies, such as history, geography, physiology, and the sciences, lend themselves best to this method. A geographical illustration will be most serviceable in showing its application. If the class were studying the transportation systems of the United States, one of the main trunk-lines of the country might be selected

as typical of great railroads. The class would study the rolling stock—the engines, and the freight-, passenger-, sleeping-, and dining-cars; the road-bed, with its tracks, ties, and rock ballast; the safety provisions of signals and watchmen; the army of men that is needed in the movement of trains and the upkeep of the various parts of the system; going into detail until the term railroad system was most meaningful. When possible, visits would be made to the railroad tracks, yards, shops, and offices. Pictures would be shown to make remote things clear, and maps and drawings might be used also. Every device would be employed to make one big idea clear. Then, in later study, reference could be made, as occasion arose, to this type, thus making it possible to explain how other railroads differ.

B. *Outcomes.*

As can be seen readily, the outcomes of this lesson will be very rich concepts. The term railroad system will be most meaningful. Around this central idea will be many facts of less importance in various stages of organization and clearness.

C. *Strength of the Type-Study Method.*

The strongest point of the type-study method is its simplicity. Nearly every person who enters the school-room to direct the work is keen enough to select a type and present the materials related to it. Those

who are not probably ought not to teach. The tendency to emphasize details, characteristic of this method of teaching, always makes the work concrete, and interest is usually very good. Studying one thing in detail is the way most of us learn in ordinary life, and from that point of view the method is psychological. For that matter, educators often have advocated that we return to such intensive study in our schools. Under the present conditions of many items superficially treated, it might prove of much value to do so.

This method depends for its success, in the main, upon the organization of subject-matter. This fact has been used in the past as a basis for the construction of text-books. Histories, geographies, zoölogies, and botanies have been prepared from this point of view, and have done much to enrich the school-room curriculum. The intensive treatment of type topics that is needed tends to make such books too detailed, however, and in the hands of untrained teachers they are not very successful. The fact that different teachers will choose different types for study makes it necessary for the text-book-makers to include several types of many things. Unless many details are included, these books need much supplementing. If enough are presented, the books are somewhat unwieldy. In subjects where definite types have been adopted widely, the type-study arrangement is a very helpful point of view from which to organize books.

D. *Weaknesses.*

The type-study method is sometimes attacked from the logical point of view by saying that in this plan of teaching children form generalizations from one example, and thus tend to form hasty conclusions. These critics insist that this method is intended primarily for the enrichment of ideas, not for the development of generalizations. However, if the work is guided by a skilful teacher, there is little more danger of flighty conclusions from this teaching form than from others. Although only one example is in the foreground of the class's attention, many others are in past experience, and influence thought. Whenever pupils have no related past experience, there is little organizing or classifying done in their minds, under any teaching method.

A real difficulty in using this method in many schools is the lack of suitable supplementary material. To be most serviceable, an extensive library, accessible both to teachers and pupils, is needed. Much help may be obtained from the *National Geographic Magazine*, *The Mentor*, and similar periodicals; but these are not always at hand.

This method is limited for its success by the types chosen for study. Sometimes the teachers choose poor types, and the conclusions consequently are not of much value. Familiarity with this form of teaching will enable those using it to select types suited to the

method. Another limitation that should be noted is that type-study methods are of no value in those subjects and phases of subjects where a rich content is lacking. Such topics do not give knowledge outcomes, and other teaching methods should be used.

II. EXPOSITION.

The second method of imparting knowledge that will be considered is exposition, or telling. This form of teaching is the dominant form in the lower grades and in the college. In the last six grades of the public school this method is somewhat in ill repute, because those who have applied it have tried to use a college style. In the primary room the teacher tells the children many things that they remember. She selects things fitted to the immaturity of the children—stories, bits of information, and the like. That is the reason for her success. In college the teacher is interested in a logical organization of his materials and is a master of the details. His students are mature enough to grasp the logical arrangement, and there are so many details that they are interested easily. When the high-school teacher tries to boil down the logical organization of the subject, and omits most of the details, it is no wonder that the pupils are bored and fail to respond. Fundamentally, however, there is no reason why the expository method can not be adapted to teaching in the high school. All that is needed to make this form useful is a selection of materials suited to the pupils

and the observance of a few of the principles of expository presentation.

A. *When to Use Exposition.*

There are many occasions in the average class period when a bit of pertinent information is needed to round out the point before the class. This is the time for the teacher to use this form of teaching. Some teachers get so thoroughly in the habit of eliciting everything from the class by questioning that they never think of the possibility of anything else. Sometimes much time can be saved in teaching by a little telling on the part of the teacher. In the schools of France and Germany this form of instruction is relied upon mainly. If it can be the main method of the foreign teacher, it must have some merit—enough, at least, for an occasional use in the more advanced grades of the American public school. It seems possible to use this form freely, when the pupils do not have the information and it is not worth while for them to hunt for it in a study lesson. If the teacher knows the facts, the best thing to be done is for her to tell them in a way that the pupils can comprehend. To do this is to impart knowledge effectively.

B. *Technique of Expository Teaching.*

Assuming that the teacher wishes to do a somewhat extended bit of expository teaching covering five minutes or more, the work may be divided into several

steps. The principles that make this work effective will be serviceable in less extended applications of this method of teaching. These steps may be condensed or omitted at times, but the thought movement must be complete.

1. **Approach.**—Before an attempt is made to present the new material, it is necessary that the minds of the pupils be prepared for it. The usual method of doing this is to recall the related experiences of the pupils in such a manner as to put them in the proper frame of mind. The approach should aim to give the teacher and pupils a common mental background. Ambiguity results where this is not done. Thus, if the teacher wished to tell the pupils about the Grand Banks of Newfoundland, and the term banks had the common meaning of a place where money is kept, the lesson would not make much progress until this difficulty was removed. Other illustrations are furnished by the school-room jokes so often found in newspapers and magazines. This lack of a common mental background is the reason for many failures when teachers attempt to make interesting additions to the lesson.

The approach should end by placing the point to be explained clearly before the pupils. This clarity must be such that there is a real desire to know more. In other words, there must be a lesson aim. The fact that an aim is present, however, need not lead to a formal statement of it, such as has characterized teaching occasionally in the past. This lesson aim should be

felt as a need by the pupils, and no amount of formal phrasing alone will bring this result. When teachers first were trained to make statements of their lesson aims, they sometimes went to extremes to secure them. Thus, it is said that in these schools it was a common practice for the student-teacher, for the want of anything better when this stage was reached, to say, "Now, children, our lesson aim is to see what comes next."

A good plan for securing the proper pupil attitude toward the new knowledge that is to be presented has been called, figuratively, creating a vacuum. By this is meant cultivating mental attitudes that are so ready for the assimilation of new knowledge that no special effort is required to impart it. The way this can be done may be illustrated by the manner in which a group of pupils was stimulated to want to learn short division. This phase of arithmetic had been neglected somewhat in the fifth grade that furnished the illustration, and the supervisor thought she would help matters along by creating a desire to know how to do it.

The plan used was this: Lists containing short problems in addition, subtraction, multiplication, and short division were prepared, which were presented to the pupils on successive days in ten-minute periods just before recess. The pupils knew how to do the first three fundamental operations, but had never learned short division. The papers were marked and returned to the pupils each day before the day's session closed.

On the first day only one or two pupils showed much interest in short division. On the second day these had learned how to do the work and solved their problems correctly. Others then began to want to know how to do these problems. On the third day the supervisor and the teacher in charge were almost overwhelmed in their leisure periods with requests from the pupils who wanted to be shown the secret of "carrying," so as to get the correct answer.

This is an example of the development of definite aims. The principle employed is to allow the pupils to attempt to do something they think they can do, but for which, in reality, they are unprepared. The pupils may think they can spell correctly, write grammatically, or do some other task as it should be done, but an actual trial will convince them of the contrary. In class situations of another sort the vacuum may be created by proposing solutions for problems, or trying solutions proposed, which will not prove satisfactory when tried.

In preparing for new information, the teaching should be positive, not negative. This means that nothing should be taught that must be unlearned later. The device, in reality, is incompleteness. A part of the complete result should be given, so that the whole may be sought later. Thus, the way for a technical term may be prepared by using a long, cumbersome phrase that is full of meaning.

2. Presentation.—*a.* Presentation proper: When

The teacher who is wise will not try to know
about the topic of the period and is ready for the real
expansive teaching of the presentation proper. There
are several principles that aid the teacher in the pre-
sentation.

The first is that everything must be connected with
what the pupils know. All new things must be related
to previous experience.

The second is that the points under consideration
must be seen by pupils and teacher from the same men-
tal point of view. It does little good for a teacher
to present minute details to a class that is not familiar
already with the object as a whole. What seems per-
fectly clear to the teacher may be quite unintelligible
to the pupils. Only when the teacher can summarize
a number of points that are already a part of the men-
tal equipment of the pupils, and bring in the new item
after a "therefore," is it certain that the teacher and
pupils are thinking together.

The third principle is that expounding means inter-
preting and explaining. It is not merely the presenta-
tion of facts, but their connections, that should be
emphasized. The facts themselves are often of im-
portance only as they give meaning to the principles
they support.

The fourth principle is that there should be a
arrangement of materials that will present small uni-
ts first. These then are combined into larger ones. This
plan of logical arrangement permits pauses or break-

ing spaces at the end of the larger units. Time must be given for the ideas presented to set or be fixed in memory, for it is one of the fundamental laws of psychology that the brain cells need time to assimilate experience if they are to retain it. If things are presented too rapidly, each new experience seems to obliterate the preceding, and nothing is remembered clearly. This implies, then, that the teacher must not go too rapidly in the presentation, but must give time for the minds of the pupils to work properly.

Expository teaching is much more effective if some of the conventional aids to exposition are used. The most common ones are analogies, stories, and illustrations. Each has its merits and shortcomings. The skilled teacher avails herself of those that meet her needs, and thus makes her teaching more realistic.

Analogies are very useful at times when the other aids are not available. They are of especial service in making more concrete the abstract facts of experience. Often the easiest way to make actions or qualities clear is to point out their resemblance to those that are known. Analogies, however, are not always dependable. They may imply more than is intended, and again they may fall short of the predetermined goal. Teachers should never use analogies so frequently that they can not find good ones. False analogies are worse than none, for they mislead.

The story also is valuable in the hands of the skilled teacher. It may be used to communicate facts that

could not be imparted readily alone. There is a thread of interest in the good story, where the right sort of characters are portrayed, which makes it almost as good as actual blood-and-bone individuals. Further, the story permits the desired facts to be manipulated in a manner that will make them stand out more prominently than they do in real life.

In addition to imparting knowledge, the story may be used to incite to action or to suggest general principles that may control action. This is one of the places where expository teaching connects up with moral education. Unless the story is well selected, it may fail to attain the desired goal because the incidental things obscure the facts or principles that are intended to be taught. In using stories the teacher must allow them to do the teaching. It never pays to moralize or to put a moral at the end. Children of the present react to these just as we did when we were children. When we came to the moral at the end, we skipped to the next story.

Illustrations are of no value except as they impart information. This information must be intrinsic in them. This point is obvious and need not be elaborated.

Illustrations are of many sorts. These vary from the actual objects under discussion to the merest skeleton suggestion of them. When the real object can be brought into the school-room, and is of such a size as to be visible to all in the class, it is best to use it.

When objects are very large, very small, or very complicated, it is sometimes better to use models. Thus, a model of an Atlantic passenger liner or of the eye of a fly will be more serviceable than the real thing. The various parts are made more intelligible by the decrease or increase in size.

Teachers often do not have access to models. Under these circumstances they may use pictures or some of the related forms of illustration. Pictures, especially when reproduced on a large scale by the stereopticon or reflectoscope, are very serviceable. Children are so used to looking at them that they find little difficulty in interpreting them because of their artificial nature. Pictorial illustrations range in kind from actual photographic reproductions to the simplest diagrams. Sometimes a conventionalized form is better than the actual photograph, because it reveals the significant features better. The same is true of the diagram.

Diagrams are very useful because they often are constructed easily. At times the teacher may sketch diagrams on the blackboard while talking. To do this it is not necessary for her to be an artist. The simplest lines and crudest diagrams are often very effective in the class-room. Teachers should use the blackboard freely in exposition. It is very effective as a means for holding the wavering attention of the pupils.

Closely related to diagrams are outlines and summaries. These tend to put related things together before the pupils, so as to make them more objective.

b. **Summary:** After the teacher has given all of the new material that comes in the presentation, and has used every device to make it clear, one thing more must be done before asking the pupils to take the last step in the lesson. The facts have been presented in much detail and sometimes with apparent digressions. Before leaving the point under discussion, it is well to go back to the aim set up in the approach and summarize the facts presented. This summary will set facts in their proper relations and will help much in making the presentation effective. Its neglect often will cause any extended effort at exposition to be lacking in value.

3. **Application.**—The final step in the expository lesson is the application. One of the most effective tests of the success of a teacher's effort is the results secured when the pupils are asked to use what they have been taught. This problem is too complex for a brief discussion; hence a detailed consideration will be found in a later chapter. If nothing better is desired, the teacher may use some form of test or examination as the step application.

C. *Value of Expository Teaching.*

The chief value of the expository method of teaching lies in its time-saving nature. It is much easier for the teacher to tell the pupils than for them to find it themselves, when they might have to hunt a long time for the information if they secured it first hand. Some pupils learn things very readily in this way. It is eco-

nomical to tell them, because they remember in detail. They seem to be ear-minded, as it were, and learn more quickly when things are told to them than in any other way. Because of these pupils, exposition is a method that most teachers can use successfully at times.

D. *Defects of Expository Teaching.*

As might be inferred from the preceding paragraph, there are pupils for whom the method is little suited. The thought movement is so rapid that they have great difficulty in following it. The result is that they soon lose the thread of things and, although they seem to comprehend what is said, they remember little of it. All has been lost in the multiplicity of details. There is not enough repetition to insure the permanence of the facts in their minds.

Further, exposition is suited only for some kinds of subject-matter. Where the facts and details are rich and new, it is very serviceable; but where the pupils possess most of the materials, or can secure them readily, other methods are better adapted to bringing out relationships. In reality, the field in which the expository lesson can be used in all its elaborate details is very limited. It can be used frequently, however, interspersed with some of the other teaching methods, especially the question-and-answer recitation. Exposition is by nature restricted to the informational phases of subject-matter.

SUMMARY

The task of imparting information is the most important one that confronts the teacher. It may be provided for by merely keeping the information before the pupils in book or other form. Better results are secured, however, by the use of one of the psychological methods.

The type-study method is the simplest. Its outcomes are rich and varied concepts. It is a method that can be utilized by most teachers, and it lends itself to the presentation of subjects containing a rich content. Its success depends upon the selection of good types and the use of abundant supplementary materials.

The expository form of teaching is a more complex method of imparting information, which can be used at times in public-school work. The lesson should plan for a good approach, one that really prepares the pupils for what is to be presented. The presentation should connect up the new materials with what the pupils already know. It should use ideas that are intelligible to both pupils and teacher, and should emphasize both interpretation and explanation. Analogies, stories, and illustrations should be used freely to clarify the teacher's words. The presentation proper should end in a summary. The expository lesson is not complete until the pupils have applied the information given. This

teaching process is very economical when the information can be presented easily by the teacher but can be obtained by the pupils only after much work.

Suggested Readings

- ADAMS, JOHN. Exposition and Illustration in Teaching. Chapters I-IX inclusive. An interesting and complete presentation of the expository method of teaching.
- BURNETT, T. J. The Essentials of Teaching. Pp. 100-106. Advantages and weaknesses of the expository method of teaching.
- CHARTERS, W. W. Methods of Teaching. Pp. 266-268. Short but favorable comments on the telling method of teaching.
- EARHART, LIDA B. Types of Teaching. Pp. 29-30. A few pertinent suggestions on the place of telling as a teaching method.
- McMURRY, F. M. and C. A. The Method of the Recitation. Chapter X. A thorough presentation of the method and value of type studies.
- PARKER, S. C. Methods of Teaching in High Schools. Pp. 214-217. A few remarks on the type-study method.
- STRAYER, G. D. The Teaching Process. Pp. 66-68. Brief but critical comments on the type-study method of teaching.

Exercises

1. Select five topics from history that are suitable for type-study lessons.
2. What are the subjects that are best suited to the teaching of type studies?
3. Prepare a type-study lesson just as you would present it in class, imagining the main questions and answers that would be used.
4. Prepare a list of ten topics that you think it would be expedient to teach by the expository method.
5. What subjects seem best suited to the use of exposition in teaching?
6. Prepare five diagrams that are suitable for use in the class-room in expository work.
7. Visit class-rooms, and note the extent to which teachers in general use the expository method. Note the good uses of analogies, stories, or illustrations that are to be found.
8. How can type-study or expository methods be used to supplement the ordinary text-book lesson?
9. Prepare an expository lesson on a suitable topic, using as many of the suggestions given in the chapter as are available.
10. How can the teacher ascertain whether or not her efforts along the line of expository teaching are a success without waiting until an examination is given on the topic?

CHAPTER VII

IMPARTING KNOWLEDGE (*Continued*)

III. INDUCTION.

THE third method of imparting knowledge is what is known as induction, or the development lesson. This form of teaching was the first form to be studied carefully. It was the outgrowth of the early attempts to apply psychology to the teaching process, which Herbart and his followers sponsored. Because of this origin, it is often known as the Herbartian development lesson. It may properly be called a lesson, for it is one of the most extensive and complete systems of teaching technique that is employed by experts.

A. *When to Use the Inductive Lesson.*

The inductive method of teaching is in order in those lessons where simple and important generalizations are to be imparted. It has been found that such are remembered best if developed. In this connection it might be said that other kinds of generalizations, when important enough to be taught at all, should be presented by exposition. The inductive lesson presupposes a fund of facts at the command of the pupils, either in their memory storehouses or where they can

find them easily during the study lesson. The outcome of this teaching exercise is a generalization. This generalization may be in the form of a concept, a law, a principle, or a rule. Whenever a teacher wishes to be sure that she has taught one of these effectively, the best method is the inductive lesson. This lesson is an extremely logical one, and its complete success requires the clearest organization possible.

B. Technique of the Inductive Lesson.

The technique of this lesson has been worked out very carefully by the Herbartians. Although there are several versions of the lesson to be found in current works on teaching technique, in the main the lesson may be considered to have five steps. These steps may be covered in one class period, though the lesson lends itself very well to the arrangement wherein one or more study periods come between some of the steps. Consequently, the real inductive lesson need not be limited by the temporal restrictions of the class period.

1. **Preparation.**—The first step in the inductive lesson is the preparation. This serves much the same purpose as the approach of the expository lesson, and the suggestions presented in that discussion apply here. In this step the teacher endeavors to recall to the pupils such information on the subject as they may have. This information is handled in such a manner as to lead up to the statement of the aim. This is nothing but the question raised by the preparation. It can be

answered best by the generalization that is developed by the lesson. In this phase of the lesson no attempt is made to introduce new material.

2. **Presentation.**—This step is the one in which the pupils collect the raw material that is to furnish the facts for the lesson. With the aim set in the preparation as a stimulus, the pupils sometimes may be set to work gathering the materials in the study lesson. In such a case this step begins with an assignment. At other times the materials may be contributed by different class members during the recitation. Where the generalization is to be formed from facts already a part of the mental equipment of the class, the complete set of facts need not be possessed by any one member of the class, but different ones may each make his own contribution. In this case the time will be spent in bringing out the different related items of information that the various pupils possess. This step is complete when all the facts are before the class.

The most important caution that the teacher must observe, in the presentation, is to make sure that enough facts or cases have been observed to make the lesson clear. When the materials are new but very simple, a few cases will suffice. On the other hand, when the things observed are complicated and diverse, many more instances will be needed. There must be enough examples of the phenomenon in all of its aspects to make the later generalization sound. In some cases the essential common characteristics are

obscured by irrelevant details. When this is true, it is necessary for the teacher to select carefully in order to secure the best and clearest examples possible. Much inductive teaching fails in the presentation because teachers select things for consideration that confuse instead of instruct.

3. **Comparison and abstraction.**—Inductive thinking usually is defined as reasoning from the particular to the general. Related items *a*, *b*, *c*, and *d* are examined, and the common quality *x* is found to be present in all of them. The third step in the inductive lesson is devoted to this comparison. The various items have been presented to the class, and now they must be scrutinized carefully to see whether they have any common qualities. Under the guidance of the teacher, the class thought is molded until all of the pupils have the fundamental abstractions. This phase is a very difficult one for the teacher to direct, because it demands the guidance of clear thinking under the strenuous conditions of the class-room. Unless they are drawn in a perfectly logical manner, the comparisons tend to confuse the pupils instead of helping them. This is true, especially, if the teacher does too much of the thinking herself and forces the abstraction. The pupils must be allowed to do most of the work.

4. **Generalization.**—When the pupils have made the comparisons and abstractions, they are ready to put the results of their thinking into a finished form. All that remains to be done is to put the generalization

into words. Teachers often are in too much of a hurry when they come to this step. The pupils should be allowed and encouraged to give their own wordings. At times a very satisfactory plan is to allow several pupils to suggest phrasings for the generalization. They may be asked to defend the words they use, when there is a disagreement, and out of the resulting discussion a final wording may be selected. Only when the class has exhausted its interest in the situation, has the meaning, and is not making progress, should the teacher offer a finished phrasing for the generalization. This may be compared then with the wording as found in text-books or other authoritative sources.

5. **Application.**—Logically, the inductive lesson has not been completed until the generalization has been applied by the pupils. Where the generalization is a rule, such as some of the rules of arithmetic and of the other mathematical studies, the application is carried out in general on a set of problems. This step, however, is deductive reasoning, and the details of the application can be given better under the topic deduction.

C. *Strength of Inductive Teaching.*

The inductive lesson is psychologically correct. The different steps have taken their form as the result of a careful analysis of the way in which people learn general ideas. This fact makes it certain that, if a teacher uses the steps as they should be used, and secures

careful, connected thinking, there will be no doubt about the result. It is a sure method of teaching. Its certainty is due to the fact that it stresses every phase of the material and brings out the fundamental relations. There is so much repetition with variation that interest is maintained easily in most cases.

D. *Defects and Shortcomings of Inductive Teaching.*

Inductive teaching demands such clear thinking that many teachers are unable to master its technique. Logic teachers always find a certain percentage of their classes that does not use words and ideas clearly enough to think well. It is no disgrace for them, any more than it is a disgrace to have difficulty with trigonometry or Greek. Teachers who do not think clearly, however, seldom succeed with the inductive lesson. In addition to requiring clear thinking, the inductive lesson is so lengthy that it tires the undisciplined. Teachers can not be trained in its use as readily as in some of the other teaching forms, but most teachers can master the technique if they are given enough practice in it under supervision.

Inductive teaching is very valuable when a simple but important generalization must be taught. There are many school-room lessons that are not important enough, or that are too difficult, for development lessons. It has been the common practice of ardent Herbartians to try to teach everything by this one teaching method, and to draw conclusions from every unit of

subject-matter. Such enthusiasm is hardly warranted by the results secured.

IV. DEDUCTION.

Deduction is usually considered to be the opposite of induction. It is reasoning from general principles to particulars. A large amount of our teaching attempts to get pupils to see the implication of the laws, principles, and rules that they may have learned. As contrasted with induction, deduction is a much simpler and shorter process. It is an unusual situation when a bit of deductive teaching lasts longer than a few minutes. From the point of view of length, the deductive teaching exercise can hardly be considered a real lesson. It is too brief.

A. *Types of Deductive Teaching.*

There may be said to be two types of deductive teaching—the anticipatory and the explanatory. The first is used to forecast the details that will be found in a particular situation. It can be illustrated by the way astronomers discovered the planet Neptune. They had discovered Uranus, and were studying its path according to the principles of planetary movement. At one place Uranus did not do exactly what they expected it to do. After a time two celebrated astronomers set to work and performed some unusual experimental calculations. The result was, they decided that “if a heavenly body of a certain size was in a certain

position in the sky, it would exert enough attraction on Uranus to draw it out of its course in just the manner that was puzzling them." When they had finished their calculations, they requested another astronomer, who had a powerful telescope, to point his instrument at a particular spot in the sky on a certain autumn night. He did so, and when he looked he saw Neptune. Its discovery had been anticipated by deductive reasoning. This method, when applied to teaching, gives the anticipatory type of deductive teaching.

The explanatory type is very similar to the preceding. The main difference is in the point of view. As a rule, this second type is said to be present when the facts at hand are connected up with the principles that interpret them. This is the form that is used so often in the class-room when the pupils are asked for "the principle that explains" this or that phenomenon.

B. *Technique of Deductive Teaching.*

1. **Data.**—Usually there are said to be four steps in deductive teaching. The first step consists in presenting or recalling the facts that are to be considered. Thus, if the lesson is to be on a group of miscellaneous problems in factoring in algebra, this step is completed when the problem has been examined carefully and its exact character recognized. When the pupils know exactly what the problem is that is to be solved, they are ready for the next step.

2. **Principles.**—The second step consists in the selec-

tion of the principles that apply to the particular data in hand. If, in the illustration just given, the data consisted of $36a^4 - 36a^2c + 9c^2$, the pupils might be expected in this step to decide what principle applied. After they had examined the quantity carefully, it would be in order to say that it was the square of the difference of two quantities. In much deductive teaching the task is not so simple. Pupils propose principles that will not apply and that are only partly related to the data in question. The principles offered must be suggested by the data in the case, within a reasonable limit of error.

3. Inference.—When the data and principles are at hand, the next step is the inference. The pupils are led to say what is implied by the facts. Thus, to continue our illustration, they would be expected to say that the two factors were $(6a^2 - 3c)(6a^2 - 3c)$. The inference is really a guess; but, as long as it is controlled by the data and principles, it is all right. It is only when guessing is wild, not related to the facts in the case and not verified, that it is to be condemned. When pupils make inferences that are not related to the problem under consideration, they should be led to justify their suggestions. This is much better than the practice of those teachers who never give the pupils an opportunity to test their suggestions.

4. Verification.—The final step of the deductive lesson is the verification. Some means must be employed to find out whether the inference is valid.

There is no value in making continual inferences if it is not known that they rest on the proper assumptions. Deductive thinking assumes that certain principles apply in particular instances. In reality this may not be true. It may be a false assumption. In that case the inference that was made is not valid. Pupils continually are making many assumptions that are not true, and they need to have a means for checking up. The keen thinker is discriminating when it comes to selecting classes and making inferences and can foresee results. This ability is found in its best form where real native capacity has received the proper training. Since training is so important, it is well to recognize that it is helped materially by adequate means for verification. Inference may be verified by going to some authentic source—the teacher, a book, or Nature herself.

C. *Advantages of Deductive Teaching.*

This teaching method is one of the most valuable that a teacher can use. It is a much simpler piece of work than the inductive method, and frequently is required by the ordinary subject-matter. This teaching method is important because it results in very desirable outcomes. It introduces the factor of organization and makes meaningful principles that have been mastered already. In the case of the anticipatory form, a very good motive is furnished for seeking for evidence that will support the inferences made. In

this way the puzzle instinct is aroused, which of course is a very valuable aid. Whenever education can use this instinct, very effective work is secured. When a problem has been attacked deductively, the organization and thought given to it open the way for further study on the same basis. The deductive lesson is the final step in the complete inductive lesson. It is not necessary, however, that every principle or rule be developed or taught through the inductive lesson before it is used deductively. Often the pupils can secure their principles from books or from expository teaching. These generalizations can be used just as well as those that have been imparted through the inductive method.

D. Limitations of Deductive Teaching.

This teaching method is not so limited in its field of application as the inductive. It, however, is restricted to informational topics, and is of no value in securing emotional or drill outcomes. Further, there are some pupils who are poorly qualified by nature to profit from deductive teaching. The deductive method of teaching is criticized often because it encourages guessing. As has been stated already, guessing is to be condemned only when it neglects important limiting factors. One of the most important tasks confronting the teacher is the encouragement of controlled inferences or guesses. This can be done only by giving the pupils practice in this kind of work.

V. REFLECTIVE THINKING.

The ordinary text-book recitation does not lend itself to any of the formal methods of teaching in pure form. Many of the points of the different methods can be used as they fit into the varying situations. The resourceful teacher makes use of combinations of various teaching methods, and thus secures the best results. In many recitations a little exposition combined with a little deduction and, perhaps, an occasional piece of inductive teaching bring about a rapid assimilation of knowledge by the class. Such a recitation can well be called reflective thinking. It should not entirely supplant the pure methods, however.

A. *Opportunities for Using Reflective Thinking.*

The ordinary class-work presents many opportunities for reflective thinking on the part of the pupils. Those who are able may do independent thinking frequently. Others may follow the reasoning of the teacher, of other pupils, or of the book. It often is thought that this second-hand thinking is of little value; but pupils who are not original enough to think out things for themselves can usually see the logic of things that have been explained. Children who are very capable often do not possess all of the information needed for independent work. Such pupils can comprehend complicated things when they are pre-

sented clearly by others, and thus acquire information at the same time that they receive explanations.

The organization of lesson facts is another of the fields for reflective thinking. Facts are presented frequently in a more or less obscure manner by the text-book or original sources. Pupils who put these in well ordered systems of thought are doing good work of this nature. Excellent training along this line is given if the pupils make outlines of the materials of text-books or of other sources of knowledge. The topical recitation also gives an opportunity for a kind of reflective thinking and organization.

A still further opportunity for reflective thinking is furnished by problem-solving. Problems abound in every subject that has a knowledge content. Teachers are in the habit of thinking about arithmetic, algebra, or physics examples whenever problems are mentioned, and often do not recognize that there are problems in history and geography. Whenever the teacher can ask "Why?" or "How?" she can present a problem. "Why should patriotic citizens pay taxes cheerfully?" "Why does the water from this well make people sick?" "How can a person invest his money best?" These are problems that stimulate reflective thinking.

B. *Steps in Reflective Thinking.*

1. **Defining the task or problem.**—The first step in teaching any kind of reflective thinking consists in

deciding what the obstacle is. The teacher can not expect pupils to start in with the same ability along this line that they will manifest later, after training. Practice is very helpful. Then, too, there are marked individual differences between pupils in the ability to define the problem. There are some who never see the problem in the situation. These are never disturbed by most of the vicissitudes of life, and are the ones who go on in uneventful lives in the midst of turmoil. The teacher can never hope to do anything with them, and they never accomplish anything that is original in reflective thinking. If they must take algebra or geometry, they copy type problems and memorize explanations. In some cases this inability to see the problem is restricted to one kind of subject-matter: geometry, physics, or history.

A second class of pupils recognizes that a problem exists in the situation, but is not able to discern it clearly. These are the "scatter-brains" who are just as likely to carry the feather-bed downstairs and to throw the looking-glass out of the window as not. They never see the problem in all its aspects, and are nearly certain to overlook limiting factors. The third class is composed of those who see the various phases of the problem in all of their implications. They always know what to do, within reasonable limits, and enjoy this work of reflective thinking very much. The teacher can do much with the last two classes. Class two never can be expected to do much original work,

but will secure very good imitative results. Pupils of this type profit much from the explanations of others, and often make a very good display of reasoning ability that seems, but is not, original. The three classes shade into one another, and many graduations may be found, so that a teacher should not expect to be able to classify her pupils exactly into these three groups.

2. **Methods of attack or solution.**—After the pupils have decided what the obstacle is, the next step, in well directed reflective thinking, is to find the solution of the difficulty. Every solution demands information, but teachers sometimes make the mistake of expecting children to be proficient before they have the necessary information. On the other hand, the use of information in reflective thinking is one of the best ways to secure its thorough mastery. For this reason, it often proves of value to introduce reflective thinking as soon as the minimum information has been acquired. It is not necessary that all the related facts be provided in definite form by the minds of the children. It may be much more effective, from the point of view of the teaching process, if the facts are entirely new. All that is needed is a good knowledge of the sources where the information may be secured. Thus, one may be forced to do very good reflective thinking if he stains his coat and hunts through books on the subject until he learns how to renovate his garment.

When pupils have the information or know where to get it, they must be taught the subtleties of reflective

thinking. The first thing they must learn to do well is to analyze conditions. The situation must be picked to pieces carefully, so that every factor involved is recognized. For example, if pupils are working originals in geometry, they must learn to fulfil all the conditions of the exercise before trying for a solution. After they know just what is wanted, the next step is the making of suggestions or hypotheses. Here the teacher may be of much service. The pupils may be stimulated to make suggestions and evaluate them. Merely suggesting solutions is not enough. They must be taught to foresee the consequences of their hypotheses, so as to learn to reject the useless ones. When well trained, bright pupils become so expert that they frequently will reject wrong hypotheses before they have them half formulated; they will subconsciously evaluate them, as it were. The only suggestions that are really formulated are those that have a bearing on the problem.

Pupils should be taught to be systematic in their search for definite hypotheses. One of the greatest aids along this line is a record of the various alternatives as they are raised and rejected. Above everything, pupils should learn to maintain the attitude of suspended judgment. They should not assume that they have a correct solution until they have good reasons for thinking so.

3. **Verification.**—The final step in reflective thinking is verification. The solutions may be checked by gath-

ering further evidence, by testing out further inferences, by going to authorities, and in other ways. As far as possible, the pupils should learn to use the various checks. Mathematics usually lends itself to checks, and hence is much more definite than some of the other studies. Answers are provided in most mathematics text-books, and the pupils find them a ready means for verifying their work. Sometimes teachers find that some of the pupils seem to have no other objective than to secure the answers. They would remedy this situation by doing away with all answer-books, thus depriving students of the benefit of a ready means for the verification of their work. In most cases where this is done, the pupils secure answer-books secretly, and the teacher works on, thinking that the class is studying without answers. It would be better not to encourage such duplicity by forbidding the answer edition of the text. The situation could be handled better by the occasional introduction of problems from outside sources, the answers to which could not be secured readily without solving the problems. This would emphasize the rôle of the answer as a check and not as an end.

The need of a means for verifying the work to keep up pupil interest is shown by the translation work of foreign-language courses. One reason why translating from the mother tongue to the foreign is so much harder than translating from the foreign to the mother tongue is that the latter offers a ready check in com-

mon usage, while only an educated native of the foreign land can really check the former. Few language teachers are qualified to do it well.

There is little value for pupils in doing reflective thinking unless they verify their work constantly. The skilled teacher trains pupils to use all possible methods of doing this. An important part of the training in reflective thinking consists in learning how to tell whether one's work is correct.

C. *Value of Reflective Thinking.*

Reflective thinking is what a person must do whenever he solves the problems of life. This makes it important that pupils be trained in this activity. The average uneducated individual is very inefficient in dealing with many of life's problems, and finds it hard to concentrate on activities that demand continuous attention. Although a course of training is not an absolute guaranty that a person will be able to do good thinking, there seems little doubt that it is helpful along that line.

From the point of view of the class-work, the question of time is important whenever the value of reflective thinking is under consideration. It takes much time to do effective work. This fact must be kept in mind when pupils are asked to do it. They must not be hurried, or the results will be superficial. It is a well known psychological fact that people *must have time* to think. When they are hurried, the nervous

system sometimes refuses to work and the mind becomes a blank. Further, hurry tends to make many people forget quickly. From the point of view of reflective thinking, the values obtained by it may not be worth the time it takes to think out a particular problem. The results might be secured more efficiently in some other way.

For example, pupils are sometimes asked to do tasks that are long drawn out and yield nothing new, such as a physics problem the writer once was asked to solve in the laboratory. On this occasion each member of the class was given an aluminum cylinder to find the specific gravity. Crude instruments prevented accurate work and the entire process was too lengthy for much interest. Even though the class members worked as carefully as possible, it was difficult to secure values accurate enough to satisfy the teacher. All of the time every one knew that the book said the specific gravity of aluminum was 2.6. It would be much better if such pedantic exercises were eliminated. Every task in reflective thinking ought to be viewed in the light of the question, "Is this the most economical way to secure these results?"

Another factor that determines how much value is to be obtained from exercises in reflective thinking is individual differences. The bright pupils usually take the lead in group thinking. The result is that the slow ones often gain but little from the work that is done. They get lost in the intricacies of mental activity. The

same is true when the teacher does most of the thinking. This need not be the case if the classes are graded into sections according to ability.

METHOD AND MENTAL ACTIVITY

The teaching method that is used, not the subject-matter, determines the mental activity of the pupils. This is interesting and significant, for it makes the teaching art possible and very important. Upon the mental activity in which the pupils take part depends the sort of outcomes secured. The simple informational outcomes, such as facts, concepts, and some generalizations, may be imparted by type studies and exposition. The most important of the generalizations, when not too difficult, should be taught by induction. The other informational outcomes, such as modes of thought and mental attitudes, are the result of more extended periods of teaching, and the teacher may expect the varied tasks of reflective thinking to be most helpful. It takes time and much experimentation for a teacher to learn which of the methods is best suited to her individual peculiarities. This implies that a teacher ought not to use any method blindly, but ought to select the method in the light of past experience and of the outcomes desired.

SUMMARY

The third method of imparting knowledge is the complex Herbartian inductive development lesson.

This should be used when the teacher wishes to impart simple but important generalizations. It usually is considered to have the five steps, (1) preparation, (2) presentation, (3) comparison and abstraction, (4) generalization, and (5) application. The inductive lesson is a very good procedure for imparting certain kinds of knowledge, but it is such an exacting piece of work mentally that many teachers do not learn to use it well.

The fourth method of imparting knowledge is deduction. There are two types, the anticipatory and the explanatory. The lesson has the four steps, (1) data, (2) principles, (3) inference, and (4) verification. Deductive teaching has many advantages, the most important of which is the organization and interpretation of knowledge.

The fifth method of imparting knowledge is the informal work known as reflective thinking. The ordinary school subject-matter offers many opportunities for this work. The steps in reflective thinking may be considered to be three: (1) defining the task or problem; (2) methods of attack or solution; and (3) verification. Reflective thinking is very valuable, but it must be directed properly to realize its greatest possibilities.

The methods of instruction, and not the subject-matter alone, determine the mental activity that will take place in the class-room.

Suggested Readings

- BAGLEY, W. C. *Educative Process*. Chapters XIX and XX. A complete presentation of induction and deduction, with especial emphasis on the psychological aspects.
- BURNETT, T. J. *The Essentials of Teaching*. Pp. 84-91 and 123-147. A critical evaluation of induction and deduction and a clear discussion of the place of the five formal steps in teaching.
- CHARTERS, W. W. *Methods of Teaching*. Chapters XIX and XX. An excellent treatment of the use of induction and deduction in teaching.
- EARHART, LIDA B. *Types of Teaching*. Chapters V and VI. Another excellent treatment of the use of inductive and deductive teaching types.
- McMURRY, F. M. and C. A. *Method of the Recitation*. Chapter VIII. An excellent discussion of the inductive lesson by two of its earlier champions.
- PARKER, S. C. *Methods of Teaching in High Schools*. Chapter IX. A clear treatment of the rôle of reflective thinking in imparting knowledge.
- STRAYER, G. D. *The Teaching Process*. Chapters V and VI. A very good treatment of the use of induction and deduction in teaching, filled with excellent suggestions.

Exercises

1. Choose ten topics that could be taught best by the inductive lesson.

What informational materials can you suggest that are not suitable for inductive or expository teaching methods?

Prepare an inductive lesson on the topic, the binomial theorem.

Select a topic to your liking, and prepare an inductive lesson on it.

When would it be possible to omit the formal treatment of the step, preparation?

How may the laboratory be used to furnish material for inductive lessons? What topics would it be best to teach in this way? Which ones would it be better to teach by laboratory demonstration? Expository methods?

What is the relation of the definition to the inductive lesson? What purpose does it serve in the deductive lesson?

What should the teacher do when children make ridiculous mistakes in reasoning?

Why is working for the answer in mathematics a bad practice?

What is wrong in a situation where the mathematics book gives a series of miscellaneous exercises that the class is unable to work intelligently? How can the situation be remedied?

Which is better: to take the principles for use in the deductive lesson from the text-book or from a preceding inductive lesson? Why?

Which is the better practice: to give exercises re-

quiring the application of the generalizations of the inductive lessons immediately after completing them, or to wait until a number of generalizations have been formulated and then provide an abundance of exercises on them all?

13. Prepare a detailed deductive lesson for presentation to a class.
14. Why is it necessary that the first step in deduction be devoted to a careful examination of the data?
15. Why is it necessary to verify inferences?
16. When would it be best to use a combination of induction and reflective thinking, as it is called?

CHAPTER VIII

FORMING HABITS AND ROTE ASSOCIATIONS

I. DRILL WORK.

A. *Two Kinds of Drill Outcomes.*

IN addition to the work required to secure the knowledge outcomes, discussed in the two preceding chapters, the teacher's efforts must result in a number of drill outcomes. Children are not educated when their mental efforts result in comprehension in terms of their own language alone. They must learn some of the choice bits of the past in the conventional language of society, and they must do some things just as they should be done. These drill outcomes may be divided into two classes—habits and rote associations. Habits are more sought after by the teacher in the lower grades than by the teacher in the high school; yet there are many habits that must be formed even among the older pupils.

The teacher of a foreign language must connect the various printed symbols with the proper habitual, vocal responses, if anything is done orally. The athletic coach has a major portion of his work in the field of habit formation. "Good form" usually means little except the functioning of right habits. The baseball-player must learn to catch in the right way, to bat so

as to meet the ball where it can be sent shooting out across the diamond, and to throw accurately. The sprinter must hold his arms in definite positions and breathe so that his lungs will be of most service. Each basketball-, football-, and tennis-player must learn many things that are primarily habits. The teacher of stenography and typewriting spends much time in similar work, as does the drawing teacher, the music teacher, and the manual training teacher.

The other class of drill outcomes also is demanded frequently. Pupils are asked to learn the States of the United States and their capitals, the names and dates of the Presidents of our country, the words of song and poetry gems. Each of these tasks requires them to remember words or ideas in a definite, fixed order. These are often called rote associations. Between this class and the habits already discussed are other things partaking of some of the characteristics of both, such as the use of punctuation-marks and correct spelling.

The important thing, however, is not whether the outcome is a habit or a rote association. It makes little difference which it is, from the point of view of the teaching process. The important thing to be recognized is that these outcomes are to be secured only by repetition. The nervous system must be made to respond in the desired way so frequently that it responds of its own accord upon the presentation of the proper stimulus. In other words, the thing must be made automatic before it can be used effectively.

Much time is wasted in the school-room because things that ought to be done without much thought demand all of the pupils' attention. We recognize how foolish it would be for the baseball pitcher to have to decide just what the exact arm, wrist, and finger movements are that will result in a curve across the outside corner of the plate six inches above the batter's knees; but it is not always recognized that it would save time to learn the rules of punctuation, the meanings of important words, or the verb forms of a conjugation. Whenever anything that has an exact form is needed frequently, it is better to store it away in the nervous system of the pupils than to allow them to look it up each time it is required. Both habits and memories are retained by the nervous system, so it is proper to speak of all drill outcomes in this way.

B. *Two Phases of the Problem.*

The problem of securing drill outcomes presents itself from two points of view—that of the group or class, and that of the individual pupil. Many of the drill outcomes can be secured by exercises in the class period. This is the kind of work most teachers do. At times, however, the pupils must be asked to drill by themselves, individually. They do this in their study periods. This phase of the problem is, in reality, a part of the larger problem of teaching pupils how to study. Many of the suggestions relative to habit formation and memorizing are relevant to both class and

individual work. Therefore, the teacher's task will be considered from the two points of view.

C. *The First Question.*

The first question a teacher must answer before beginning a class drill exercise is, "Is this drill material?" Is the point under consideration of so much importance that it will be economical of time and energy to work for a drill outcome? This is a very important question, as many who went to school in the past can testify. Even where the teacher used good methods, pupils were sometimes called upon to memorize many things of little value, as the counties and county-seats of their home States, the names of the townships in their county, numerous selections from prose and poetry, history dates, and articles from the Constitution of the United States. On the other hand, many habits were neglected entirely, as enunciation, writing forms, and physical postures and carriage. It was easy to set memory tasks to keep the pupils busy, but exacting to train in the other things; so teachers emphasized the one and neglected the other. To do good teaching there must be discrimination on the part of the teacher.

D. *Technique of the Drill Lesson.*

1. **Motivation.**—The first step in a drill lesson, or exercise, is the motivation. This consists in getting the class to see that it is necessary to form the habit or

to memorize the facts under consideration. Usually it is sufficient if the pupils see that they need the lesson's objective and are shown that they do not have it. Pupils, as a rule, are very keen to recognize whether or not they know a thing or can do it. Therefore, motivation can consist mainly in pointing out the need for the point in question. A very good way to do this is to provide situations in the class-work that require the use of the particular habit or rote association. A few of the class may have it, and the others will see how they can save time by mastering it too. Even if none of the class have it, the procedure is about the same. Thus, if a teacher of French wishes to motivate the memorizing of the verb forms, the pupils might be led to use them by looking them up each time at first. Then, when the class had discovered the need for a frequent use of these, the teacher could point out that it would save time to memorize the lists.

For the teacher to fail to motivate is for the pupils to go at the drill work half-heartedly and without interest. The teacher must bring attention and interest on the part of the pupils to the task. Drill work without these is futile. Teachers themselves have been known to repeat a series of facts often enough for a number of pupils to memorize them, only to find that they themselves could not reproduce them from memory. The pupils repeated in attention and with interest, while the teachers gave little attention or interest to the work. This step in the drill lesson is

very brief in most cases, frequently occupying but a few minutes.

2. **Focalization.**—The next step in the drill exercise is called focalization. Odd as it may seem, teachers sometimes tell pupils to drill when they have never told them upon what to drill. They must be told what to learn. The point of the exercise must stand out so that no one can miss it. When this is not the case, a part of the class will do nothing, and their excuse will be that they did not know what to do. This focalization should be positive, not negative. This implies that the form shown for focalization should be the correct one. Teachers sometimes try to remedy bad habits by calling attention to them. It is better to substitute the right ones. At times a teacher may do much damage by presenting the wrong form or by calling attention to the wrong habit. Pupils who are neutral, so to speak, become confused and learn the wrong form instead of the right one. Teachers of foreign languages, dramatics, and public speaking, as well as of other subjects, sometimes tell a pupil, "That is not correct; try it again," and do not show him the correct form. Instead, teachers should allow the pupils to imitate them after they have shown what should be done. Imitation is an important aid in securing a correct start in drill work, and should not be neglected.

3. **Repetition.**—The third step is the memorizing or habit-forming process itself, repetition. This step may be made most effective by the observance of several

rules. First, there should be a correct start. The first *form* to affect the nervous system should be the one *that* is to be retained. Thus, if a person is learning *French* pronunciation, he should start with the correct *sounds*; or, if he is memorizing a poem, he should get *the* exact wording from the first. Further, the point to be drilled upon should be presented as vividly as possible. This does not mean, however, that the final attainment in speed and accuracy should be sought immediately. Accuracy should come first and speed later. Another rule is that there must be no exceptions until the habit or memory is perfectly automatized. **E**ven then, exceptions tend to undo what has been accomplished.

To get the best results, the pupil must put as much energy and attention into the repetitions as possible. Anything done in a languid, listless manner makes only a slight impression on the nervous system and results in almost nothing. A person can not learn things readily when attention is divided. After the correct habit or rote association has been established firmly comes the time to speed up the process. Teachers of typewriting use this last principle by insisting that their students sacrifice speed for accuracy. They say that if a person is accurate speed will take care of itself, that a person unconsciously speeds up when he has formed the correct habits, and that he can not go rapidly until he has done so.

E. Devices that Aid.

There are many devices that are of service in securing the best results from drill work. They are of value because they help through motivation and increased attention and interest. As a rule, they lead to a quickening of the repetitions until the most favorable conditions are realized. It has been found that the repetitions should be so fast that there is no chance for attention to wander, but not so rapid as to confuse. There is a tendency on the part of most teachers to overwork a device as soon as they find out that it is of value. This should be avoided if possible.

1. **Emulation.**—Emulation has been used very much in the past to speed up drill work. In fact, it has been greatly over-emphasized. Emulation is striving to attain the same standard that some one else has attained previously. Pupils were taught to strive for marks and positions of distinction. The spelling class had its system of head-marks, the drawing class its exhibition of good work, and so on throughout the curriculum. Emulation, however, often is overdone, and tends to become the end and not the means to the end.

2. **Competition.**—Resembling the device of emulation in some of its aspects is competition. Pupils are spurred on to excel one another in different tasks. This results in a very intense rivalry, with much interest and attention. Thus, a class may be asked to see who

can learn a poem or form a habit first. The greatest drawback to the use of competition is individual differences. As soon as the class members have competed with one another a few times, some will discover that they are always at the head of the list, and others will find themselves usually at the bottom. It makes little difference how hard some strive: they can never reach the head position. They lose interest.

This loss of interest may be prevented somewhat by recording the rank order of each member of the class every time. This procedure results in putting each into competition with those of nearly the same ability. A still better method is to put each in competition with his own record. A system of recording should be used that will permit each to keep his own score from day to day. Every normal pupil will try to improve, because the results of his efforts are shown objectively. Any method that records results objectively is valuable.

3. **Time limit.**—A time limit may be used very effectively. The class may be asked to see how much they can do in three minutes, where the work is composed of small units. Where the units are large enough to require a third of a minute or more each, and are all of about the same difficulty, the pupils can strive to see how quickly they can master each unit. If there is a large clock with a second-hand in the room, the pupils can record their own time. Where a clock is not available, a stop-watch or ordinary watch, held by the teacher, can be used. Another plan is that wherein the

teacher indicates the time on the blackboard, thus enabling the pupils to time themselves.

4. **Rhythm.**—Modern teachers do not make use of rhythm in drilling as much as teachers did years ago. It is very effective. Where the materials can be put into rime of some sort, pupils memorize easily. Nearly every one is familiar with the jingle about the days of the months, "Thirty days hath September,"² etc., and knows of its efficacy. In the past pupils sang history dates, geography facts, and other prosaic things, and learned them readily. The device is just as useful now. In the field of habit formation rhythm and music are very helpful. The graphophone has been used to teach writing, a stirring march selection inducing rhythmic movements that resulted in rapid progress.

5. **Variation.**—Variation itself may be called a device. It is much better to use several forms of activity for three minutes each than to use one form for ten or fifteen minutes. Thus, it would be better to spend three minutes in oral drill, three minutes in written, and three minutes at the blackboard, than to drill nine minutes on any single form. Through variety, interest and attention may be maintained.

6. **Concert work.**—This device is not so valuable, because the pupils soon lose interest in it. When used but a few minutes at a time, and only occasionally, it may be effective. In foreign-language study concert

oral work may help train the ear for correct sounds. When used frequently, without other devices to check the results, however, pupils may learn things incorrectly through carelessness and inaccuracy.

7. Problems.—Another device which is employed frequently to emphasize principles and facts in what are sometimes called drill exercises, is the use of problems. These employ the puzzle instinct. They emphasize discrimination more than repetition, however, so it easily might be questioned whether they are really drill exercises. Much drill results from the incidental repetition that they demand, and this justifies their consideration as a drill service.

8. Approval.—The approval of parents, teachers, and fellow pupils may act as an incentive to induce some pupils to apply themselves to drill exercises. This is where the granting of marks to the children, which they may carry home with them, proves of value. Marks may be over-emphasized, however, and their bestowal often leads to a false idea of their importance and significance.

9. Stern necessity.—In spite of all that a teacher may do to inspire and lead pupils to apply themselves, there are boys and girls who sometimes do not respond. For these there seems to be no other device remaining but stern necessity. They must be made to repeat the movements or thoughts so that they learn the essentials. Oftentimes such pupils are slow mentally, and a

little personal work may be more effective than arbitrary pressure. The brilliant but lazy boy or girl must be put under the pressure of stern necessity, however.

F. *Psychology of Drill Work.*

1. **Length of drill exercises.**—Psychologists have shown that the best results are secured from brief drill exercises. Where the teacher has worked out a good plan for securing speedy repetitions, the drills should never last longer than five minutes at one time. If a longer time is used, a new device should be resorted to at the end of a few minutes. Where the drill is listless, a longer time is needed to secure results; but a listless drill is always a time-waster. Short drill exercises, carried out systematically day after day, are what produce results. In some subjects, *e.g.*, music, typewriting, stenography, very long periods of several hours are the common practice; but comparatively little progress is made in these when the pupil has become tired. These long periods, however, must be used to accustom the workers to business conditions. An individual learns most rapidly when he is rested, because practice, when he is tired, does not make much impression on the nerve-cells.

2. **Pleasure aids habit formation and memorizing.**—Another thing the psychologists have taught us about learning is that pleasure is an aid to drill work. If the pupils are kept in a happy, enthusiastic frame of mind, they can do much more work with a given

expenditure of energy than if they dislike the drill exercises. This is one of the reasons for the popular demand that the teacher interest her pupils. This interest should not be the end of the teacher's efforts, but merely the means to make the work pleasant.

3. **Zeal and concentration necessary.**—Drill work is most effective if attacked zealously and with every ounce of energy concentrated upon the task. This is a point that is of great value in individual work. Those who have studied the formation of complicated habits, *e.g.*, learning to typewrite or to speak a foreign language, usually say that it is only successful repetitions that count. These are the ones that are carried out under the conditions of the greatest zeal and concentration of attention. When the repetitions have been carried to the point of fatigue, enthusiasm is lacking and little progress is made.

4. **Forms of the drill exercise.**—The form of the material in the drill exercise should be, as nearly as possible, the same as the form in which it is to be used later. It has been found that it is most economical to practise the activity itself rather than formal exercises. Pupils learn to spell best by writing their spelling lessons when they study them. Music teachers put their pupils at work on simple songs and pieces containing melodies rather than upon formal exercises. Teachers of typewriting give connected discourse for practice as soon as possible. All this implies that separate training in the elements of a habit seems to

be of little value in general. This is because many nerve connections are formed in the repetitions of formal exercises, that must be broken later when the real work is undertaken. It is harder, often, to undo the results of drill than it was to secure them in the first place.

5. Trial and error indispensable.—Another point that has come from the scientific study of habit formation is that trial and error are indispensable. It seems to be impossible to foresee all of the minute details, and many of them have to be hit upon by accident. Just because everything is not known about the way a particular habit is formed is no insurmountable obstacle to its formation. Repetitions sometimes get a wrong direction, but they finally result in the desired goal being attained if persisted in intelligently.

6. Verbal directions a help.—Although trial and error are necessary, carefully worked out verbal directions are of much value. This is where the teacher may be of service. A teacher should be able to tell pupils how the important things should be done. Where she can not tell, she should at least be able to show the way to do the things needed. This requirement places a burden upon the shoulders of the teacher under the present condition of imperfect knowledge of the psychology of school subjects, but it also opens up a large field for useful service. In time there probably will be accurately worked out studies of the various drill tasks. Until then a teacher must do her best

under the circumstances and use what knowledge she possesses.

7. **Understanding an aid to memorizing.**—When a pupil understands a thing, he has taken a big step toward memorizing it. The simplest way to remember things is to understand them. This fact has been emphasized much by some educators, even to the extent of overlooking the necessity of anything other than understanding as the basis of learning by heart. As far as possible, things should be remembered by understanding them; but, as soon as comprehension fails, it becomes necessary to resort to repetition. There are some people who seem to be aided but little by the analysis of poems, and they must rely upon frequent repetitions to become able to reproduce them exactly.

8. **Memorizing by wholes.**—It has been shown by careful studies that it requires fewer repetitions to memorize anything as a whole than to memorize it piecemeal. When pupils memorize things undirected, they usually repeat a part until they know it, and then take the next part. Thus, in learning a poem of two stanzas of eight lines each, they would learn the first two or three lines of the first stanza; then they would take a few more lines, and then a few more, learning the first stanza in several parts. It would save time if they could be induced to go through both stanzas from beginning to end at each repetition. Memorizing by wholes is economical, but it is discouraging to young

pupils. They do not see any results after several repetitions, and this disheartens them. The results become apparent all at once. With older pupils it is of more value. Whenever the material to be memorized contains parts of unusual difficulty, the whole method should be supplemented by a few extra repetitions of these difficult parts.

Pupils should be encouraged to try the whole method of memorizing, and then should be allowed to use the part method if the other is too discouraging. In memorizing, they should be taught to try to recall what they have repeated after each repetition. If they can not recall a part, they should look at the original for a little prompting and then try to remember the rest without any help. Every time they have to stop, they should go to the original for assistance. The selection to be memorized should be gone over completely each time. Teaching pupils to memorize is mainly an individual teaching problem. Little can be done through group work.

9. *The learning curve.*—The learning curve of complicated things, such as telegraphy, typewriting, and foreign-language facility, has been studied with much care. If the progress of an individual is recorded from day to day and this progress is shown graphically, it has been found that it is much the same for different learning activities. This graphic representation is called the learning curve. It shows striking similarity for different things. In general, a student makes

rapid progress when he starts the learning. Soon he slows up and seems to make no progress for a time. If he persists in his practice in spite of this discouraging experience, he will be rewarded by progress a little later. It may be that he will meet two or more of these periods of little progress. These have been called plateaus.

Plateaus have been studied carefully, and their nature and causes are significant for teachers of drill work. They are times of discouragement and loss of interest. Before an individual will make any improvement, he must be lifted out of the slough of despondency into which he has sunk. He must attack the thing with renewed interest. Further, it has been found that in learning some things plateaus are inevitable. They seem to be times when the learning has become more complex, and the simple things have been nearly all learned independently but not in combinations. Further progress is dependent upon the formation of the combinations.

Thus, in learning telegraphy, a person learns the alphabet first. Then he learns to catch the series of sounds that form words. Before much progress can be made in receiving connected discourse over the wire, however, a person must learn many things that do not show objectively, as distinguishing the interval between words and series of familiar words. This accounts for some of the lack of progress. Thus it seems as if the formation of complex habits were dependent

upon the previous formation of many simple habits. One unfamiliar word in a sentence often prevents the student operator from catching any of the sentence or phrase.

Because plateaus seem inevitable, it does not follow that they can not be shortened. It has been found that the condition of fatigue is responsible for unduly long periods of no progress. This can be remedied by inducing the person who is practising to rest when at such a point. A brief vacation often results in renewed enthusiasm and rapid progress. Any device that will result in increased interest and added vim in the practice will help to shorten the plateau.

Most persons who give up the learning of anything are said to stop when they are in the discouragement of the plateau. To a certain extent, a person's ability to learn is tested by his ability to stick to the practice even when discouraged. The fact that such periods of no apparent progress are the rule should help the teacher to encourage pupils who are in that stage. A very effective way to encourage them is to vary the work until the upward movement starts again, and then they will find the interest incidental to progress of great help.

10. **Age and drill exercises.**—Another thing that the psychological laboratory has shown is that the best drill age is just before a person has reached his maturity. Those who are in their college courses learn more readily, that is, with fewer repetitions, than those

of the elementary or high-school age. This is true under the conditions of the laboratory. It is probable, however, that the experience of educators, who have always thought that the years between eight and twelve are the best for drill work, is founded upon a difference between the class-room and the conditions of the psychological laboratory. The laboratory furnishes a motive for grown-up subjects that is not so effective with the younger ones. In any case, the intermediate grades will remain probably the time for drill work, because many things are needed later that can and often must be learned at this time. The later years are the time when pupils are able to assimilate information better and they find drill work more tedious. The experience of the laboratory, however, shows that, if drill lessons are needed in later years, there is no reason why the deficiency may not be supplied.

SUMMARY

There are two classes of drill outcomes—habits and rote associations. The problem of securing these has two phases, the class and the individual. The first question to be decided concerns the importance of the task of the lesson. The technique of the drill lesson includes the three steps, (1) motivation, (2) focalization, and (3) repetition. The work is aided by the employment of a number of devices: *e. g.*, emulation,

competition, time limit, rhythm, variation, concert work, problems, and approval. The psychological aspects of drill work include the following: the length of drill exercises; the rôle of pleasure, zeal, and concentration; the necessity of trial and error; the use of verbal directions; the place of understanding as an aid to memorizing; and the interpretations of the learning curve, with its plateaus.

Suggested Readings

- BAGLEY, W. C. *The Educative Process*. Pp. 328-331.
A brief presentation of the drill lesson.
- CHARTERS, W. W. *Methods of Teaching*. Pp. 383-393. A somewhat extended section on the drill lesson.
- EARHART, LIDA B. *Types of Teaching*. Chapter XII.
A complete treatment of the teacher's duties in the class-room work incidental to habit formation.
- HARVEY, N. A. *Principles of Teaching*. Pp. 246-247.
A brief but pertinent section on habit formation.
- PARKER, S. C. *Methods of Teaching in High Schools*. Chapters VI, VII, and VIII. A complete account of the psychology of habit formation and memorizing, especially of the learning curve.
- STRAYER, G. D. *The Teaching Process*. Chapter IV.
Suggestions about devices for securing motivation and for improving drill work.

Exercises

1. What subjects abound in materials that are suitable for drill lessons?
2. Why is it necessary to use different methods for class and for individual drill work?
3. How can a teacher be sure that the topic she has chosen is really one that should be made automatic?
4. Prepare a drill lesson on a suitable topic, using three devices to speed the repetitions.
5. Make a list of topics that are suitable for drill lessons.
6. What things do teachers sometimes ask the children to drill upon that are not needed often enough to justify such efforts?
7. How would you break a bad habit by substitution?
8. Visit class-rooms, and observe the teaching work for drill outcomes. What does the teacher do to aid in forming habits or in memorizing? What things have not become automatic that ought to have been drilled until they were?
9. What drill topics are complicated enough to permit the keeping of a record of the learning curve? How could the record of the curve be of any aid in the drill work?
10. What plans is it well for the teacher to make in preparation for a drill lesson?

CHAPTER IX

DEVELOPING THE EMOTIONS

IN the past, teachers have neglected this phase of education. Although the feeling side of life has been recognized by psychologists for a long time, the pedagogy of the emotions has not received much attention. This is because it is a difficult problem, which has been attacked with an imperfect knowledge of the way feelings are imparted.

There is a great need for the right sort of emotional development. Human beings naturally respond to emotional situations that are largely of the comic-supplement type. It takes teaching to get them to feel the more delicate appeals of good music, painting, sculpture, and other art. The average American is undeveloped along these lines. To many European visitors the nation seems crude. Most of our cities are positively ugly, with no attempts at beauty. Many of our homes are built without any pretense of art, or with such attempts as violate every rule of æsthetics. Houses stand out of bare yards without the simplest attempt at landscape work. On the inside, walls, furniture, and decorations betray the same lack of sensitiveness to the beautiful. Nowhere is this more in

evidence than in wealthy rural districts where automobiles, live stock, and other evidences of wealth are found in abundance. One is not surprised to find poverty-stricken communities deficient in such things, but when people of means present the same deficiency, it can be explained only by the lack of proper development. Under present-day conditions of high-speed production and the short working day, men and women need to be taught how to employ their leisure time. That they do not know how to do so now is shown by the kinds of entertainment they seek—those built mainly upon crude humor and sex suggestion. Really beautiful moving-pictures, drama, music, and literature, beautiful because they arouse the better emotional responses, have a hard time, securing only a meager support. That this condition is only the result of lack of training is shown by the fact that some communities have developed a keen appreciation of the beautiful. In general, our schools have not accomplished much because the teachers have not understood the principles of emotional training, and not because such training is impossible.

PSYCHOLOGY OF EMOTIONAL TEACHING

The mistake that teachers often make is that they try to communicate emotional attitudes by means of words. Words are the symbols of ideas and not of feelings. The word *beautiful* is a concept, and can

help only after much teaching, when it will prepare a person for the arousal of an emotion. It will not of itself arouse the emotion. When a teacher tells a class, "This is a beautiful painting," showing a masterpiece, but little response will result if the teacher does not put any feeling into the words. Moreover, if a painting is hung on the wall, and the words, "This is a beautiful painting," are placed alongside of it, but little effect will be made on the pupils when they see it for the first time, unless they respond instinctively to the beautiful. However, if the teacher speaks the words in a tone that shows the emotion she feels, the pupils will be more likely to respond. In other words, emotions are radiated. If one person expresses an emotion naturally, others respond, because most people are born sensitive to the feelings of others. The panic caused by the cry of "Fire!" in a crowd is caused more by the emotional tone than by the actual word. As the cry is repeated, the emotional tone of fright becomes more and more intense, until the mob is seething with emotion. This condition can be quieted, just as quickly as it arose, by the calm, unemotional bearing of any one who can catch the attention of the mob. When applied to emotional teaching, this means that the teacher must feel the emotion that the words imply, if the teaching is to be successful. The language of the emotions is but partly evolved. Actors study it because it is at the basis of their success. If teachers are

to do the highest grade of emotional teaching, they must become actors to a certain extent.

There are marked differences between individuals in the development of this ability to respond to emotional radiation. Some are unaffected by situations that set others a-quiver with excitement. Others develop this ability to respond much later than their fellows. Further, there are reasons for believing that this esthetic sense does not manifest itself to any great extent until the age of adolescence. If this be true, little can be done below the junior high school in training the emotions, except as such work may give the intellectual basis for later emotional development. The fact that the earlier years are years of imitation, however, makes it desirable to begin this teaching early in the school, lest golden opportunities be overlooked.

INFORMATION AS THE BASIS OF EMOTIONAL TEACHING

The preceding section has shown that the real psychological basis of emotional teaching is the radiation of feeling attitudes from teacher to pupils. This does not mean that emotions can exist of themselves. On the contrary, every emotion must have an intellectual basis. It must be the feeling aroused by something seen, heard, touched, tasted, smelled, or remembered. Thus, there is a very definite basis of information for the emotion. Before a person can be well trained emotionally he must be educated intellectually. The

mistake that teachers in the past made was in assuming that they had completed their task when they had given the necessary ideas. Ideas must be given, but these must have the proper emotional coloring if they are to function. Many people acquire the right ideas but these never carry over into conduct, because they have no emotional background. They mean nothing as far as real life is concerned.

In the school-room it is necessary for the teacher to furnish the facts, but this can be overdone. Where the knowledge side is over-emphasized the emotional is neglected, and the results are fatal to appreciation and emotional enjoyment. This caution is applicable especially to the teaching of literature, for here the teacher is tempted to analyze in detail, thinking that is the way to do it. Specialists in most fields are inclined to do this. With pupils who are untrained in a subject, only the most elementary analysis is of value, be it music, painting, or literature.

SCOPE OF EMOTIONAL DEVELOPMENT

The field for the development of the emotions is as broad as life is many-sided. It includes that which is beautiful or valuable because society has developed the taste that it is, as well as that which stirs up the feelings naturally. From one point of view the entire field might be included in the mental reactions denoted by the term appreciation, taking in what appeals to

people as pleasure or enjoyment also. The point of view taken here is that emotional development must provide for both phases, appreciation and enjoyment, although no quarrel is sought with the individual who wants to make the term appreciation broad enough to include all of these life phases.

I. APPRECIATION.

A. *Esthetic.*

There are two kinds of appreciation—esthetic and social. Esthetic appreciation includes those activities that usually are classified as art. Music, painting, drawing, and the various forms of decoration and adornment will be recognized immediately as being among those implied. In addition, literature on its art side, poetry, and the drama must be included. In fact, anything in which good taste, beauty, lofty conception, and inspiring themes are involved is material for esthetic appreciation. The problem of esthetic appreciation is not only active, but is also passive. A person must be trained to produce esthetic things as well as to recognize and prize them. Further, many esthetic forms may be found already provided by nature, and the pupils must learn to value them.

B. *Social.*

The second kind of appreciation has to do more with the values and needs of human beings. Every man must live in the society of his fellows if he is not to be

a hermit. Before he is ready to live thus, he must learn to govern his conduct by the standards of right that his fellows have adopted. People in different parts of the world have different customs and standards, and these must be viewed with sympathy and understanding when one travels. Men have done, and are doing, many things from lofty motives; hence, a study of history, geography, and world events offers a very good opportunity for social appreciation. Esthetic appreciation is concerned with the finished product. Men must live and work and serve, and the man or woman to whom this means nothing is one-sided.

II. ENJOYMENT.

In addition to the activities of life that pupils should appreciate, there are other phases that merely are to be enjoyed. Participation in them gives pleasure, but it is hardly of a refined enough quality to deserve the term appreciation. Thus, a person enjoys a game of tennis, croquet, or golf, but hardly appreciates them. He enjoys his newspaper, his magazine, his trip to the opera or to the vaudeville. Because of this use of words in the ordinary sense, it seems that teachers need to prepare people to enjoy as well as to appreciate. Appreciation always involves something of an intellectual nature, a discrimination of values and the like, and enjoyment is more sensual and personal. It is pleasure. To be sure, people ought to learn to enjoy that which is also of a quality worthy of appre-

ciation. In that case the two terms would be two ways of looking at the same thing.

TECHNIQUE OF THE LESSON THAT DEVELOPS THE EMOTIONS

The technique of the lesson in appreciation has been worked out very carefully in the field of literature by an English educator, F. H. Hayward.¹ His work has been done so well that it would take a genius to make any real improvement on it. Although he applies it to but one field, the technique can be modified to fit other kinds of material. Its principles of thorough preparation and careful organization can be used in many other teaching situations. The outline of the lesson will be presented as given by Hayward, with but few modifications other than condensation.

I. PRELIMINARY STAGES.

The lesson is designed primarily for the teaching of a choice bit of poetry or prose, especially poetry. Much stress is laid upon thorough preparation on the part of both class and teacher, and this preparation is a more complete one than teachers usually make. This lesson is called the "red-letter lesson," from the analogy to books that print important facts in red letters. This means that the appreciation lesson should be one that comes on rare occasions and that is looked forward to for a long time.

¹Hayward, F. H., *The Lesson in Appreciation*.

A. Negative Preparation.

1. **Anticipatory interest.**—In keeping with the idea that this lesson is to be a red-letter lesson, one long to be remembered, the teacher should begin by arousing interest along the expected line many days before the lesson is to be given. This can be done by dropping occasional hints about the "most interesting lesson" that is to come a little later. Whenever related materials are met, the pupils should be told of the fact. If necessary, other lessons should be shifted around and manipulated to prepare for this one. The object of it all is to build up a background of interest that will make the lesson a big event. This anticipatory interest is provided best by incidental methods, which are planned deliberately but which seem accidental to the pupils.

2. **Overcoming distractions.**—The distractions that may be present are likely to be mainly the result of intellectual difficulties. The teacher should remove as many of these as possible before the day for the lesson arrives. Such distractions may be the result of unfamiliar words or ideas used by the author. These should be studied in lessons preceding the big event, and the class thus prepared for them. Distractions are furnished also by any material that contains a technique that is too much for some of the pupils, such as the difficulty of reading the notation in music. In such cases, distractions should be avoided by omitting the

class-work that contains them. Where this is not done, they should be prepared before the lesson. Any drill work that is needed should come in the preliminary preparation, because the lesson in appreciation is no time for drill activities.

B. Positive or Constructive Preparation.

The second phase of far-ahead preparation consists of the work that gives an apperceptive background for the lesson. Ideas must be grouped together to make esthetic pleasure possible. As has been shown earlier in this chapter, the emotional must have an intellectual basis. The teacher may provide this by giving meanings to many things that will contribute actively to the appreciation. Metaphors must be picked to pieces carefully and explained, if there is any chance that they will fail because of unfamiliarity, and any words that have unusual or lost meanings must have the particular meanings of the selection presented. Where it is necessary to give a background of meaning to a metaphor, the teacher must use good judgment in selecting the time to do this. In some cases, it may be well to do it on the day preceding the lesson. In others, this would be the worst thing that could be done, for the unfamiliar meanings might make such strong impressions on the pupils that the result would be disastrous to the pleasure that should be derived. Throughout the positive preparation it is a good plan to make use of every item of information that the pupils have.

Further, the element of familiarity should be employed wherever possible.

II. THE LESSON PROPER.

A. *Immediate Preparation.*

The negative and positive preparation have been completed, and now the hour of appreciation has been definitely set. Before it comes the teacher must prepare herself for the task in hand. Her immediate preparation consists in becoming imbued with the thing to be enjoyed, until nothing else seems quite so important. It means getting in the right mood. A part of the immediate preparation, too, must put the pupils in the right mood. This may be done, just before the thing to be appreciated is presented, by a brief statement in simple words of the lesson aim. The teacher must be careful, however, not to overstimulate the imagination of the pupils, or the thing presented may prove a disappointment.

B. *The Hour of Appreciation.*

The principle of the first impression is the one that should control this phase of the lesson. The first impression is always a privileged one. Therefore, the teacher must make the first impression of the poem, or other selection, one that is the best possible. It must be a total impression. This implies, also, that the pupils should not have studied the selection before the hour of appreciation. Further, the teacher, not

the pupil, is the one to do the reading at this time, because she is best qualified. In presenting a poem of rhythmic beauty the rhythm should be preserved. Oftentimes teachers, trained by experts in public speaking, are inclined to disregard the metric structure of poetry and to render it after the style of prose. This tendency is bitterly condemned by those who produce poetry. Poets read their own productions with the meter intensified, even to the point of what often is called a singsong style. Teachers should at least preserve this pleasurable element, and should not read in a colloquial style that destroys all beauty. The poet has used various devices to secure his ends: sounds, ideas, and combinations of rhythm. The teacher should recognize this, and make as much use of them as possible.

C. *Esthetic Discussion.*

The next step after the presentation has been completed is the esthetic discussion. The teacher should endeavor to get the pupils to express their ideas of what is beautiful in what has just been presented. How and why the selection is beautiful, should be the theme. When the main points of beauty have been noted so clearly that even those who enjoyed the work the least can know why and how to enjoy it, the teacher should present the selection again. This second presentation should be received more favorably than the first, because of the aid given by the esthetic discussion.

D. Intellectual Discussion.

The *second* presentation should be followed by *that* phase of the lesson which teachers so often put first in teaching poetry—the intellectual discussion. This is the time for a careful analysis of meanings and figures of speech. With the background of appreciation that has been given, this can be done without so much danger of causing the pupils to get a distaste for the work. The teacher must not go too much into detail, however, or the pupils may lose sight of the goal. The object is to provide the means for a keener appreciation of the selection, and not mainly to manipulate ideas in reflective thinking. At the close of the intellectual discussion comes the time for the reading of the poem by the pupils, provided it can be done in such a way that it does not spoil the general impression. All of the class who are capable may be called upon to try to give the selection.

E. Reproduction.

The final step in the lesson in appreciation is the reproduction, or the “learning by heart.” If the subject of the lesson has been worthy and has been well presented, there will be but little difficulty experienced in raising the enthusiasm of the class to the point where they will want to memorize a part of the poem. It is well to allow the class to have something to say about what they will memorize. Teachers often ask too much from the pupils along this line, requiring

em to devote too much of their time to this work. This over-emphasis has a tendency to create a dislike for such work. It is a safe rule to say that only the real gems of the piece should be memorized. If this criterion is set up, few pupils will look upon the work with anything but the greatest of pleasure. Tact in the way in which pupils are asked to commit things to memory is needed very greatly on the part of teachers.

III. VALUE OF THIS LESSON.

The lesson in appreciation, as worked out by Hayward, is one of the most effective that educators have devised. The writer has seen teachers follow its procedure and secure excellent results. There is nothing very complicated about it from an intellectual point of view, and any person who can really appreciate beauty can be successful with it. Of course, a teacher in whom things of beauty do not awake responsive chords can not expect to do much in teaching others to respond to the esthetic. Hayward's technique is applicable primarily to the field of literature, though excellent work can be done with pictures, statuary, and other art subjects. A few modifications are needed for subject-matter other than literature, but these are not difficult for the resourceful teacher to make. When it comes to teaching social appreciation, the problem is very different, because it is hard to present such things in any other way than through ideas colored with feeling.

The most difficult phase of the entire task is to secure responses on the part of the pupils.

OTHER SUGGESTIONS FOR DEVELOPING THE EMOTIONS

The lengthy technique of the lesson in appreciation is not applicable to many of the phases of the problem of emotional development. It is too long and too complex for minor emotional outcomes. Many of its principles, which are the principles previously laid down, are of use in other situations, however. Because a chance for emotional development is apparently rather insignificant is no reason for the teacher to neglect it entirely. Teachers should be content to grasp the minor opportunities when the major ones are lacking. If they remember that feeling attitudes are radiated, teachers will always be ready to do what can be done in any situation. Teaching pupils to seek the right kinds of enjoyment must be mainly of this incidental nature.

The materials that are to be enjoyed or appreciated must be adapted to the pupils for whom they are intended. The mistake is often made of giving grown-up literature to children and then expecting them to respond. The same is true of many other things. Pupils must be trained gradually to realize pleasure out of the highest class of materials. Those teachers who now can enjoy the best music, poetry, and drama were once in the primary class themselves. It is im-

portant that as many pupils as possible be elevated to the better grades of enjoyment, because otherwise, as grown-ups, they will be inclined to seek unelevating pleasures. Illustrations of this tendency are all too common under present-day conditions of living in most American communities.

The fact that it is desirable to cultivate high standards of appreciation and enjoyment does not imply that only the most technical is of much value. On the contrary, simple appreciation and enjoyment are quite worth while. The technical pleasure that a highly trained musician gets out of the performance of a virtuoso is more intellectual than emotional. It is really pseudo-esthetic. The highest class of music should have beauty of rhythm and feeling instead of difficulty of performance as its criterion of worth for the average individual. Skilled musicians may set up other standards for themselves, but these are not for the mass of humanity. The same pseudo-esthetic appreciation is evinced in the fabulous prices paid by the wealthy for the best paintings of dead artists. As long as the artist lived and could produce more works of a similar character, his paintings brought but a nominal return, while, after his death, the same productions sold for fortunes. His death did not add anything to the beauty of the picture, but it gave the owner a monopoly. Its emotional value, as represented by the purchase price, is mainly pseudo-esthetic.

Teaching in enjoyment and appreciation should in-

clude many phases of the work. Pupils should be taught to enjoy reading dramatic masterpieces, attending, and taking part in them. In music, the training in listening is as important as the training in producing. To secure these outcomes, a school needs a room with a stage, where the pupils may attend and produce plays. It also needs one or more kinds of mechanical instruments that will make possible development through hearing good music. A teacher should not show disgust at pupils who enjoy the simple things more than the technical as a rule, but instead should compromise at times, so that the pupils may be led, through her example, to get pleasure out of better things.

The greatest problem in some phases of enjoyment, such as athletics, recreational reading, and pupil enterprises, is to secure a participation in them on the part of all of the pupils. In athletics, in many schools, few pupils take any part other than in the passive enjoyment of the onlooker. As far as expedient, participation in sports and games should involve every one, both boys and girls. The same is true of student societies, school papers, and similar pupil organizations. The tendency is for a few pupils to do nearly everything under the ordinary management of student affairs. This condition is undesirable. It can be remedied by any organization, such as intramural athletics, that will secure the active participation of nearly every member.

**CUMULATIVE EFFECTS OF EMOTIONAL
DEVELOPMENT**

As might be inferred from the nature of enjoyment and appreciation, the effects of development along these lines are cumulative. The efforts of the supervisor of music who devotes her time to the pupils of a school system do not seem to amount to much. Yet, if such a community is compared with a similar one in which this teaching is omitted, the difference will be marked. One community in the Central West has had the good fortune for several years to be under the influence of a music supervisor who realized the possibilities of the position. The result was the development of choirs, choruses, and orchestras in the schools.

When these pupils finished school, they formed independent musical organizations, and the work continued. A few years later it was a common occurrence on Sunday for one of the local celebrities, who had never been outside the town for training, to give a musical recital at one of the city churches. These recitals were of a really high grade. What a contrast this is to many of our communities, where it is difficult to find any one qualified to play a musical instrument for the singing at public gatherings! What has been done to cultivate enjoyment and appreciation in music can be done in other fields. Persistent effort counts for much in time.

SUMMARY

There is a great need for the better development and guidance of the emotions of people in general. This is

evidenced by the crude esthetic tastes and unelevating methods of enjoyment of most people. The most important reason for this condition is that teachers have not understood the psychology of the emotional outcomes of teaching. Emotional outcomes can not be imparted, like ideas, but they must be radiated. Individual differences of people to susceptibility to emotional radiation are a complicating factor. Although emotions can not be imparted, they have an intellectual basis in ideas. Too many ideas and not enough feeling are detrimental. Emotional-development outcomes include esthetic and social appreciation and simple enjoyment.

Hayward has given us the detailed technique of the lesson in appreciation. This lesson emphasizes the principle of the first impression as the fundamental one in this work. The lesson contains seven steps: (1) negative preparation, (2) positive preparation, (3) immediate preparation, (4) presentation, (5) esthetic discussion, (6) intellectual discussion, and (7) reproduction. This lesson is one of the most effective that has been devised. Intellectually it is not extremely difficult, and most teachers can use it successfully.

Teachers should seize every opportunity for developing and training the emotions, even though some of them are insignificant. The materials that are used for the work must be graded to suit the capacities of the pupils. In leading pupils to enjoy the best, the

teacher should not confuse the intellectual appreciation of unusual technique with real emotional enjoyment and appreciation. The effects of emotional teaching and training are cumulative, and the results of effort devoted to this outcome may not appear at first, but will show later.

Suggested Readings

- EARHART, LIDA B. *Types of Teaching*. Chapter X. A chapter that is especially strong in its emphasis on the necessity of social appreciation.
- HAYWARD, F. H. *The Lesson in Appreciation*. Pp. 1-98. This is the masterpiece of present-day treatments on the lesson in appreciation. Pertinent illustrations make the pages indicated very helpful.
- PARKER, S. C. *Methods of Teaching in High Schools*. Chapter X. Takes the point of view that enjoyment is more inclusive than appreciation. Many helpful hints are given.
- STRAYER, G. D. *The Teaching Process*. Chapter VII. A pioneer discussion of the lesson in appreciation, containing pertinent suggestions.

Exercises

1. What are the main points for social appreciation that are to be found in United States history?
2. What school subject furnishes the greatest number

- of opportunities for social appreciation? Which one is best for social appreciation?
3. What emotional outcomes can a teacher secure from the course in botany or zoölogy?
 4. What opportunities for emotional training does the course in algebra offer?
 5. Visit class-rooms, and note the emotional outcomes for which the teacher has made definite plans. What outcomes are secured apparently by chance?
 6. What aspects of the school-room would you modify to make it a place for the more effective training of the emotions?
 7. How are visits to art galleries and art exhibits of value in developing the esthetic appreciation of pupils?
 8. Pick out three topics that you think are suitable for red-letter lessons.
 9. Prepare a lesson in appreciation upon a suitable topic, using the plan proposed by Hayward and including all of the steps.
 10. How can the standards of humor enjoyed by pupils be raised?
 11. What are the arguments for and against allowing a committee of pupils to select the pictures for the school-room? What modified plan of selection would be better?
 12. After you have taught a poem from the point of view of appreciation, ask the pupils to write

down the lines, words, and phrases they like best. Classify these, if possible, and note any principles of appreciation that may be discovered.

What standards of appreciation and enjoyment are low in your community? What can be done to raise them, assuming that the facilities are present?

What evidences have you observed of the cumulative effects of appreciation?

What emotional outcomes result from the annual "clean-up" weeks that many cities and towns observe?

What productive or creative efforts would you encourage in the field of appreciation?

What spontaneous expressions of appreciation and enjoyment have you noticed among pupils?

CHAPTER X
THE REVIEW EXERCISE
NATURE OF

THE term, review, means in reality a new view. A new view implies that old material must be presented in a new way—in a way that will bring out points of relationship that were not discovered in the ordinary day-by-day study. The review is not a mere repetition of work that has been gone over already. This conception of the exercise is a new one to many teachers, but it is the one which will form the basis of the work of this chapter.

I. ORGANIZATION OF MATERIALS.

The first function of the review exercise is the organization of the subject-matter that has been taught to the pupils in the preceding lessons. When presented in the regular routine of daily work, facts are new, and the interpretations that the teacher gives often are forgotten. The review gives an opportunity for another effort to interpret and bring out relations. This is a very important service. A famous teacher of the past has been quoted as saying that there were but three laws that should guide the successful teacher;

first, review; second, review; and third, review. The review is perhaps not quite so important as that, but it is a very valuable aid to the securing of good teaching results.

II. REPETITION.

The second function of the review is that it gives additional repetitions to many things that would not be retained otherwise. In the regular lessons facts often are considered but once. This is not enough to make sure that the pupils will remember them. The second presentation of the facts that this exercise gives will be enough many times to fix them.

III. RECALL OF OLD KNOWLEDGE IN PREPARATION FOR NEW.

The review is used also to recall knowledge that the pupils have, in preparation for the presentation of new material. This use is recognized and applied in the expository and inductive lessons. Where the exercise is used systematically for this purpose, it is less necessary to devote lengthy periods to formal review exercises.

IV. TO DISCOVER WHETHER A TOPIC HAS BEEN COMPLETED.

Another function that the review fulfils is to check up to see whether the topic under consideration has been covered. It is difficult for a teacher to keep from

overlooking some of the minor points of a topic under ordinary class-room conditions. If a few minutes are devoted to a review at the close of the work, there is little danger that anything important will be omitted. This function of the exercise is recognized in planning the presentation of the expository lesson.

V. To TEST.

The review also is a very good device for testing the results of teaching. The oral review, in which the teacher learns what the pupils remember of the preceding lessons, reveals clearly how well the work has been done. Teachers should not let this function become so important in their eyes, however, that they neglect the teaching objective of the review. The testing function should be mainly incidental. The capstone of a thorough review is the written examination. More will be said about this in Chapter XIV.

WHEN TO REVIEW

A review is in order at the end of each unit of subject-matter. Small units require short exercises, and large units lengthy ones. Each break in the syllabus should be the occasion for a pause and a résumé of the work covered. It is not necessary, however, that every class period have its time for review. To say that the first five minutes of every period should be devoted to this exercise is to formalize the work and make it lacking in variety and flexibility. On the

other hand, it is easy for a teacher to get so interested in the rapid progress made from day to day that, as a result, she may dislike to pause for such a seemingly prosaic and time-consuming thing as the review. It is safe to say that few teachers go back over the work covered as much as they really should. Many public-school teachers and most college teachers expect the reviewing that is done to be engineered by the pupils themselves in their study work. This practice neglects one of the greatest opportunities for real teaching that the work offers. More can be done, which is tangible, in a half-hour's exercise of this kind than in two or three times as long a period devoted to the usual class-work.

HOW TO REVIEW

The review should be so conducted as to bring together relevant facts of the pupil's experience. Teachers sometimes feel called upon to review because they know that teaching theory advocates it; yet they are unable to recognize relevant facts and fail in conducting this exercise. The questions used should be such that they provoke thought. The old facts must be seen in a new light. There is no real place for new facts in the review. A teacher may find it desirable to digress from the regular line of thought and bring in new facts, but she is not reviewing when she does it. The first essential of a good review is careful thinking along lines relevant to the topic of the lesson.

The teacher may use many devices in the review exercise. Since the review is concerned primarily with the knowledge side of the teaching process, outlines are very serviceable. Topical outlines may be prepared, as noted under the section on the topical recitation, and given to the pupils to guide them in the lesson preparation. When they come to the recitation, they can use the outlines as the core of the work. Questions that demand thought and the organization of lesson facts may be given to the pupils also to help them study. These questions may be very comprehensive, enough so to justify the teacher at times even in promising that the examination questions will be taken from them. In general, the teacher ought not to limit herself by such a promise, unless experience shows that the questions are comprehensive and that the motivation resulting from them counterbalances the loss of initiative on the teacher's part. Topics may take the place of questions in the pupil assignment.

A good review recitation can not be secured unless the pupils have spent some time in preparation for it. When they have done everything that they can in the way of organizing and interpreting the materials, the teacher is ready to do the most effective work. This implies that it is best to have a study period precede the review. To ask the pupils to review without giving them questions, outlines, or topics as guides, is to cause them to repeat the work in much the same manner as it was studied at first. Outlines, partly made out

to be completed by the pupils in their study, furnish most interesting material for the class discussion. A second essential, then, is careful pupil preparation.

Problems are another device for reviewing. All problems are not necessarily of such a nature as to aid in securing a new view of old material, but many may be formed to secure that end. They are valuable in that they always bring the puzzle instinct to the aid of education. Comparison lessons, in which two topics that have been considered separately are compared and contrasted, are also valuable in review work. These comparison lessons are very helpful in the content subjects.

IMPORTANCE OF THE REVIEW

The review is a highly important class-room exercise because it frequently adds the finishing touches to a teacher's work. The work from day to day has concerned itself necessarily with detailed facts, "bits of information." Things are seen, as it were, with the high powers of the microscope in the daily work, and the pupils do not realize what they are really like. The review puts things in their natural order, looks at them with the naked eye, as it were. This work connects up the items of information that were presented from day to day and makes them meaningful.

The review also serves as a means for checking up the teacher's work. A teacher labors in order that pupils may be benefited. When they come to a review

without showing any mental improvement that may be detected, it is time for the teacher to take stock of the methods of teaching she has used. In any case, this exercise shows the weak points, which may be made the objectives of later work. In addition to checking up on a teacher's methods, the review tends to show what the individual pupils have done. It also shows what progress has been made by the class, and thus gives the teacher a basis upon which to build future lessons. Beginning teachers can adopt no rule that will be more productive of results than the rule that the completion of every unit of subject-matter should be followed by a review.

TIME TO BE GIVEN TO THE REVIEW

The time to be given to this work depends upon the nature of the teaching to be done. The daily review can be overdone very easily, because the teacher is so fresh from the details of the preceding day's work that they seem very important. One of the things that a teacher must learn is that many details are, and should be, forgotten soon after they are presented. They help to make principles and big ideas meaningful, and complete their service with this. The daily review is too close to the details to be of much help. Except the situations where a unit of subject-matter of importance has been completed, the daily review should do little more than recall enough of the preceding day's work to give a basis for the work at hand.

On the other hand, the biweekly, monthly, or semester review should be allotted ample time to make the work clear. Entire class periods may be devoted profitably to such work. The work must be well planned by the teacher. Teachers often look upon the review as something like a vacation from lesson preparation. They need to make just as careful preparation for the review as for any other lesson, though their acquaintance with the materials just covered may lighten the reading required and shorten the time needed in preparation for the teaching work.

SUMMARY

The review exercise should bring out points of view that were not noticed in the daily work. The main purpose of the review exercise is the organization of knowledge. It also serves to repeat points in need of additional attention, to recall old knowledge in preparation for the new, to discover whether a topic has been covered adequately, and to test out the work that the pupils have done. A review is in order at the end of every important unit of subject-matter. It should be so conducted that related items of subject-matter are brought together so that the relationships may be revealed. Topical outlines, questions for study that demand thought, and problems may be used to aid in the review. The review is a most important classroom exercise because it frequently adds the finishing

touches to a teacher's work. It serves to reveal to the teacher how well her work has been done. The nature of the subject-matter should determine the amount of time that should be given to the review.

Suggested Readings

- CHARTERS, W. W. *Methods of Teaching*. Chapter XXI. A well written chapter on the review exercise in its various aspects.
- EARHART, LIDA B. *Types of Teaching*. Chapter XIII. A very good presentation of the review exercise.
- HARVEY, N. A. *Principles of Teaching*. Pp. 243-246. Suggestions that will aid teachers in conducting reviews.
- STRAYER, G. D. *The Teaching Process*. Chapter IX. The review considered mainly as a means of examination.

Exercises

1. What kinds of questions must be avoided in preparing a set of review questions, if the review is to bring a new view?
2. Prepare a set of five or more questions that will be suitable as an aid for reviewing a month's work in United States history.
3. What function of the review predominates in the average spelling review?

4. What school subjects lend themselves best to the organizing function of the review?
5. Why should not every third Monday of the school year be devoted to a review?
6. Why is it necessary for the teacher to direct the pupils in their review work?
7. Why are reviews needed more in geography and history than in algebra?
8. Will the details be more or less emphasized in the review than in the daily work? Why?
9. What faulty procedure must a teacher avoid in preparing for a review exercise?

CHAPTER XI
TRAINING IN APPLICATION

THE PROBLEM

THE entire work of the school must lead to a change in the pupils' reactions toward their environment if this work is to be effective. This result can be assured only by giving them a chance to react in the school-room, where the teacher can check up and discover whether they are responding in the conventional ways. This is the problem of training in application. It is not enough to tell a pupil how to do a thing. He must be given a chance to do it. The reason why Experience always impresses people as being such a good teacher is that she teaches with the minimum of telling and the maximum of doing. If we can imitate her in this respect, without imitating her wasteful over-emphasis along one line and neglect along others, our teaching will be much more effective.

To do this, the teacher must emphasize the use of what has been taught at every legitimate opportunity, and opportunities must be created as frequently as possible until the results are satisfactory. These situations are most valuable if they are as nearly like real life as possible. The teacher's part in training in

application, then, consists mainly in creating demands for the use of what has been learned. It is not enough merely to create these situations, however. The pupils must be stimulated to make use of them.

FORMS OF APPLICATION

Before the technique of training in application is considered, it will be well to examine the various forms in which it may be found. These are forms of pupil effort that provide work for the study period. Often the study period is devoted entirely to this work. At times the same task may be brought into the formal class period, and then it becomes a different kind of exercise. The same material may be used as the subject of a bit of deductive teaching in one instance and as the task in application for home-work in another. Application involves individual pupil effort, independently carried on by the class members during the study hour.

I. CONSTRUCTIVE OR CREATIVE EFFORT.

Pupils sometimes are asked to apply what they have been taught constructively or creatively. Their efforts vary from work that is but slightly different from the model or copy, to that which shows a very high degree of originality. Thus, we may say that a pupil who in an oral theme class told a joke or story that he had read was doing an elementary piece of constructive work if he made the slight modifications necessary to

of the work of the teacher in the ordinary, he presumes to assume the part of artist. His work would be more artistic rather than confined to the theme of the lesson. In addition to the theme of the lesson written in the English courses, there are many opportunities for constructive effort in other subjects. The work in music when it reaches the high advanced stages contains much of it. The drawing and art work even from the elementary stages, is filled with opportunities for the expression of individual ideas. The work in manual training and the shop in some schools has made their demands along the same line. In fact, the average teacher may find opportunities in nearly every subject that provide for the expression of creative effort. Few subjects, however, are so filled with these possibilities as the English and art work. These offer opportunities of the highest importance in literature and art.

The other set of subjects offer less promising fields for constructive effort. The teacher of biology and other natural sciences frequently requests the pupils to make drawings of specimens and apparatus. These drawings are not intended to show anything other than the actual essentials of the specimens, but they demand knowledge and discrimination. They give an opportunity for the expression of individual initiative that is appreciated best by those who have taught these subjects. In geography and history the map work also provides the pupils with opportunities for constructive

work. This applies not only to the drawing and making of maps themselves, but also to the practice of using outline maps, which may be filled out in various ways. The commercial preparation of outline maps by publishing houses, which has reduced the cost of such helps, has opened a field to the teacher that is very important. In geography, these maps may be used to show industries, products, rainfall, physical features, and many other things. This use leads to an understanding of things that would be but poorly comprehended otherwise. In history, explorations, settlements, changes in territory, and military campaigns are made most real by the use of outline maps. In fact, this phase of teaching is often discussed under the problem of securing realness in teaching, because it is so helpful.

Another method of securing constructive effort in content subjects is by the use of outlines. This has been discussed already. When outlines are given to the pupils to be filled out in the study hour, one of the teaching functions that they fulfil is training in application.

II. TRANSLATION WORK.

The ordinary translation work of the foreign-language class is primarily training in application. The pupils are asked to put words, verb forms, and other ideas together according to rules. This is a com-

plete test of the mental assimilation of the material. Pupils must keep many things in mind, and this is what makes the work so difficult.

III. PROBLEMS.

Problems that are assigned for study work demand the application of principles and facts learned in the class period. Many subjects contain problems, as has been noted in an earlier chapter. The old established subjects, *e.g.*, mathematics in its different forms, made much use of the problem method of teaching. As taught by many teachers, the work in algebra and arithmetic is little but training in application. In physics and chemistry the problems furnish a very effective means of application, if properly selected. There is a danger, however, that problems will be pedantic and little related to practical life activities. Problems may be devised in other subjects, but these often do not lend themselves to the use of problem exercises so readily as those already mentioned.

TECHNIQUE OF TRAINING PUPILS IN APPLICATION

I. MOTIVATION.

The first step confronting a teacher who wishes to train pupils in application is motivation. The pupils must be led to desire to do the things that the teacher will ask them to do. In oral themes, a real audience and new information combine to furnish this step. In

problem work the puzzle instinct can be aroused, and it may prove sufficient.

II. STATEMENT OF PROBLEM OR TASK.

The next essential is the statement of the problem or task. The pupils must know just what the task confronting them is. It often is not sufficient at the start merely to assign a number of problems from a prepared list or to give a list of other topics. Pupils must be helped by an analysis of a few typical cases before they are ready to attack the assignments independently. As they become more skilled in this work, less help will be needed from the teacher. The suggestions given in the discussion of the assignment are applicable here.

III. NECESSITY OF INFORMATION.

The third step confronting the teacher is that she must ascertain whether the pupils have the information needed. If it is discovered that they do not have it, it becomes necessary for her to provide it. Every bit of information required need not be given at this time, but enough must be furnished to make a start possible. Pupils often acquire many additional facts as they progress in the work. The greatest weakness of most such teaching, however, is that too little information is given by the teacher before the pupils are put to work. Too much is expected of them. Thus, pupils are sent to the laboratory in biology and told to draw

the grasshopper or crayfish, finding their instructions in the manual. Such a method may be a good one to develop the research ability of the scientist, but it is a poor one by which to train the average pupil. It would be better if the teacher devoted a few minutes beforehand in describing to the pupils what they are to draw and showing where it may be found. Much time that is wasted ordinarily would be saved and a better interest would prevail. The same is true of other studies. The pupils should not be given the mathematics or physics problems without first receiving the proper preparation for the work.

These steps, motivation, assignment of the work, and the furnishing of the information, need not come in the order given here. They may take a varied order. At times the teacher may give the information first, state the work to be done next, and provide the reason for doing it last. At other times each problem may have its separate and varied treatment. The fundamental thing to be recognized in all application, however, is that effective work can be secured systematically only by careful attention to each of these requirements. When these are attended to, the pupils are ready for the study hour.

THE APPLICATION RECITATION

Many teachers have the idea that everything that the pupils study must be recited upon in class. Nothing could be further from the truth in training in appli-

cation. The situation can be illustrated best by the work in an algebra class where the pupils have spent the study period upon a list of problems in factoring. The usual procedure in the recitation is for the teacher to assign the problems that have been studied to different class members, each of whom puts one on the blackboard. When all have been copied on the board, the teacher begins the recitation by calling upon each pupil to explain his problem.

This process is usually a time-consuming procedure with few educational benefits. There is no reason why any problem should be placed on the blackboard, if it has been understood and worked successfully by all competent class members. Such emphasis might be given to problems that furnished difficulty to most of the pupils, but only to these. The time could be spent more profitably in considering entirely new problems or new facts and principles in preparation for other problems.

When the class considers problems studied at home and worked successfully, no provision is made for keeping the pupils busy, and inattention and disorder are likely to be rampant unless the teacher is a marvel at securing order without keeping the pupils busy. The task of providing for individual differences is a difficult one in this work. It can be done best by giving the pupils a list of problems that are new and allowing them to attempt them at the blackboard or at their seats, each working as fast as his capabilities will per-

and. The teacher's task would be to move among the pupils and give them the authority of the work.

There is little opportunity to go over familiar work in the recitation period where outline maps and similar work are considered. These do not lend themselves to recitation purposes and are so new that they take their proper subsidiary place in the classroom. Foreign-language work, however, might take a part from the mathematics class. There is no doubt that the attention and interest would be more intense if new material were used in class in place of that covered in the preceding study lesson when translation work is involved, especially in Latin prose composition. Even where new materials are not studied, it is a marked gain to have the old ones in new forms. This is recognized by one of the series of Latin texts, which has a book without notes or vocabulary for class-work, and another, provided profusely with notes, for the study hour.

In the English class the recitation hour may be well spent in considering the results that pupils have secured in their individual study periods. The work here is very different from mathematics. The interest is centered chiefly in the entire product and not in an answer. The pupils often need just the situation of the recitation, which furnishes them a real audience, to bring out their best. When themes are prepared for the teacher alone, not half the interest is manifested that is shown when they are prepared for the class.

The same thing is true of the work in music and art. It is the finished product in its entirety that is desired.

CHECKING THE PUPILS' WORK

It must not be inferred, because some of the work that pupils do need not be considered in the formal work of the recitation, that this work can be neglected. It must be checked, even though it is not a part of the material recited upon in class. There are various ways in which this can be done without burdening the teacher too heavily. This work is usually prepared by the pupils in a form that can be handed to the teacher. When it is prepared on loose sheets, the teacher should collect this work as faithfully as she records the attendance. When the work is put in note-books, these need not be collected so regularly.

It is not necessary for the teacher to mark every set of these papers, however, if her work is heavy. The marking of every third or fourth set will keep her in close touch with the work of each pupil, if the papers are numerous. Of course, the greatest value will be realized by the pupils if every paper is examined carefully and returned with a personal consultation with its maker; but few teachers can give the time and energy necessary to do this. Teachers often devise schemes whereby this work is lightened to a certain extent. One plan requires the pupils to keep their work in note-books. These are collected at intervals

and given a cursory examination. Another plan secures a checking of the results by having the pupils exchange work and correct each other's papers. Neither of these plans is as satisfactory as when the teacher marks the individual sheets herself, but they may be of much help to the busy teacher.

In the rhetoric class the problem is a little different from that in some of the other subjects. The written themes, especially, require a careful examination if they are to be most helpful. It has been found, however, that too much red ink may be detrimental. All criticisms should be constructive if possible, and purely destructive criticism should be avoided. In this, as in many other matters, the teacher must use good judgment if the most successful work is to be realized. It has been found that a combination of the oral and written theme work is much more effective than either oral or written work alone. Oral themes require the minimum of laborious correcting later, so teachers are, as a rule, very glad to give two or three periods a week to oral work. This is more effective, from the point of view of the teaching process, and saves much time that would be consumed in reading papers if the work were all written.

CAUTIONS

One of the mistakes frequently made by teachers while training pupils in application is to expect too much from them. The work looks so easy to the

teacher that she is inclined to become impatient when nothing but apparent failures are produced by the pupils. The difficulty is that the teacher has set up too high a standard of attainment. Whenever a teacher in an ordinary school complains about having a class of blockheads, that teacher has either not mastered the elements of teaching or is expecting too much from the pupils. If the pupils really are sub-normal, it will be necessary to change the methods used for the average pupils to those suited to defectives.

The result of demanding too much frequently is dishonest work. The teacher who fails to discriminate sufficiently to realize how much pupils can do often is unable to detect the little subterfuges to which pupils resort when work beyond their capabilities is demanded. A poor piece of work, but the pupil's own, is much better, from the educational point of view, than that which some one else has done for him. The surest way to prevent dishonest work is to ask only what pupils can do well, and to check systematically on the work. The practice of permitting tardy work to be counted often leaves a loophole for pupils to copy the work of others and hand it in as their own. A piece of work should not be accepted after the corrected work has been returned, if there is any doubt as to its genuineness. A good way to control this is to require pupils to secure special permission for the preparation of late work, and to be sparing in granting requests for this privilege.

AIDS

There are several aids or devices that a teacher may employ in one or another of the fields of work. The most common of these is the use of models or copies. There seems to be nothing quite so helpful to pupils as to have a sample product to examine from time to time as they proceed with their work. Few are so original as to be able to get along entirely without illustrative models to guide them. This device is one that has been employed for a long time in mathematics work, and is a pedagogical aid of known value. Well prepared text-books, with appropriate illustrative examples, are of great help to the teacher. Teachers of written themes also know the value of models, which may be used, when the assignments are made, to make clear what is wanted. It sometimes seems that pupils are too dependent upon these aids, but it must be remembered that they are in new work. It takes much copying and imitation to make the great artists, and the school is usually trying to impart the merest rudiments. The slightest display of originality is a real find when the work is in a new field.

In oral theme work the brief has been found to be of value. Pupils are required to prepare briefs before they come to class. These may be submitted to the teacher for criticism before the theme is given. The preparation of the brief requires the organization of the materials and helps to secure clear thinking.

VALUE OF TRAINING IN APPLICATION

This phase of teaching is of especial value because the results are objective. It is so easy to see what has been accomplished. Assuming that the reactions of the pupils are a measure of what they have learned, it is a good test of teaching results. Thus, this work becomes a test of the teacher's ability to direct the teaching process. The results secured also are a measure of the real progress attained by the individual pupils. It often happens that pupils can master memory materials readily but can not see opportunities for applying them. Teachers often show similar weaknesses—knowing the theory of pedagogy from beginning to end, but failing as teachers because they can not use what they know. Application thus becomes a test of the ability to use one's knowledge practically.

Training in application also tends to test out subject-matter. Of course, it is possible for teachers to devise very artificial situations for the application of subject-matter, but most types of application have a bearing on life problems. This bearing should be as direct as possible, and then much useless subject-matter will be detected.

The step application is the final step in several of the model teaching forms. It is a phase of teaching that should be used wherever and whenever it is of value.

SUMMARY

The teacher must devote a part of her time to teaching pupils to apply the knowledge and other outcomes they have acquired. The opportunities devised for this application should be as nearly like actual life problems as possible. Pupils are asked to apply their knowledge in constructive or creative effort in rhetoric, music, manual training, and other subjects. They apply it also in translation work and in problems. In training pupils in application it is necessary (1) to motivate, (2) to make them realize the problem or task to be surmounted, and (3) to make sure that the necessary materials are at hand or can be acquired easily.

The recitation on application materials should add a new point of view and not be a repetition of what every one has done in his individual application work. It is a common practice for teachers to go over the work in mathematics, and similar subjects, in a deadening fashion, "explaining" the work that has been done by every one. The newer subjects offer less temptation to attempt such routine tasks and are better taught in consequence.

It is necessary that the teacher check the work of the pupils carefully and systematically. Various devices may be used, however, to relieve the teacher of some of this drudgery. Teachers must not expect too much from their pupils. Original work that is of a poor quality is better than high-grade counterfeit work.

The use of models or copies that show what should be done is an important aid in teaching pupils how to do new tasks. Briefs are helpful in oral themes. The ability to apply one's knowledge is one of the most valuable results that can be secured by education. This teaching also tends to test out subject-matter; for that which can not be applied probably is of little value, in the public school at least.

Suggested Readings

- BAGLEY, W. C. *The Educative Process.* Pp. 301-304.
A pertinent discussion of the step of application.
- BURNETT, T. J. *The Essentials of Teaching.* Pp. 221-224. Several important considerations that should guide the teacher are given.
- CHARTERS, W. W. *Methods of Teaching.* Pp. 378-385. Some excellent suggestions are given.
- HARVEY, N. A. *Principles of Education.* Pp. 221-227. Points are presented on the training of pupils in expression.
- PARKER, S. C. *Methods of Teaching in High Schools.* Chapter XI. A thorough treatment of the topic expression.

Exercises

1. Give examples of practical exercises that require application by the pupils of things that they have learned.

2. Which school subjects lend themselves best to exercises in application that appeal to pupils as worth while?
3. Show how information is a necessity for effective work in application.
4. Individual differences are revealed by the way pupils respond to application work in different subjects. Illustrate this. How does this fact modify instruction?
5. What devices can you suggest for the motivation of translation work?
6. What values come from the use of outline maps in history work when these maps show territorial changes and historical movements?
7. What devices can you suggest that will make it easier for the teacher to check the work of the pupils?
8. How can a teacher be sure that the work asked is too hard for the pupils in their state of advancement in the subject?
9. What are the usual signs of dishonest work in application?
10. How may models be a hindrance instead of a help to pupils in their application work?
11. Give five examples that show the necessity of training in application.

CHAPTER XII

DEVELOPING INDIVIDUALITY

I. NEGLECTED PHASE OF PRESENT-DAY TEACHING.

THIS phase of education has been neglected to a great extent in the past. Few teachers have made any conscious attempts to develop the individuality of their pupils along definite lines. The fact that this side of their lives has been neglected has not caused it to fail to develop, but, instead, it often has developed along lines that are not the best. The result has been that pupils have grown up as their chance inclinations, home environment, and other sporadic influences have affected them. In most cases, this has resulted in the growth of an individualistic personality that is ill fitted for the complex life of social intercourse, the lot of most people. A certain amount of individuality is bound to be present under every condition because of individual differences; but, in spite of the differences, there should be desirable uniform characteristics. The differences should manifest themselves in different methods of attaining the same ends, not in different ends.

II. KIND OF INDIVIDUALITY NEEDED.

If one put it tersely, the kind of individuality needed is a social or moral individuality. This implies, first of all, that pupils must be trained to be useful members of society. Beyond this there is a need for the bringing out of the best that is in each one. A moral personality might be developed by a repressive training that destroyed initiative and originality, but much good would be sacrificed for this attainment. Instead, it is better to bring out the personality of each in such a manner as to secure the benefits of such possibilities of initiative, originality, and self-reliance as may be present. There was a time when society was static, or nearly so; but progress is so rapid now that every tendency making for a sane social adjustment is needed. The person who is original, yet who knows how to prevent his originality from interfering with the rights of others, is the most desirable member of society.

Our American society, with its democratic characteristics, is built upon the individual as a unit. This demands a thoroughly trained population. Many educators have contrasted American schools unfavorably with those of Germany, showing how the latter excelled along scholastic lines. The World War revealed, however, that American education leads the world in the development of individuality, which perhaps is of more real worth than the most thorough mastery of Latin, and mathematics.

III. METHODS THAT MAY BE USED.

Individuality is the result of the influence of many complex factors. The school life, in its extra-curriculum phases, is one of the most important within the control of the teacher. Because of the complexity of the situation, the work has suffered more from a lack of discrimination of what the results of methods might be than from a lack of methods.

A. *Class as a Social Group.*

The treatment of the class as a social group is one way in which to develop the social side of the pupils. It has been intimated already that the adoption of group teaching offered many chances for pupil development that were lacking in the older methods of individualistic teaching. The form of the question was affected and the entire method of the recitation was changed. The class, as a social group, is a factor that the teacher must consider when group plans are made. It is very unwise for the teacher to plan extraordinary activities that concern the group without consulting the pupils and molding their opinions. Teachers often employ this social force on unusual occasions, such as the observance of special days, school entertainments, and the like, but neglect it in the regular class-work. The most common method of utilizing this force is the socialized recitation.

1. **Socialized recitation.**—*a.* What it is: The social-

ized recitation is that form in which the class members take turns in presiding and conducting the recitation. A competent pupil is selected by the teacher, or the class, to direct the work. This pupil presides, and calls upon the others to recite upon topics that have been prepared beforehand by the teacher. If the pupil recitations are not complete, the leader asks questions and solicits comments from the class to complete the thought.

b. When it can be used: This form of exercise can be used only in simple or well organized material. The content must be simple enough to require little manipulation and rearrangement in class. It is of service in reviews and formal drill exercises, the materials of which are familiar to the class. It can be used sometimes in content lessons where the main purpose is to enrich topics already somewhat familiar.

c. Merits and defects: The chief merit of this form of recitation is that it develops the initiative, self-reliance, and capacity for responsibility of those who take an active part in the work. The pupil who leads the exercise undoubtedly receives much benefit from the work. The others, who are called upon to recite or who do so voluntarily, are stimulated in a different way from that in which the teacher affects them in the regular work. Pupils are more inclined to feel the approval and disapproval of their fellows than under the usual conditions. They develop self-assurance very rapidly under this recitation form.

This form of class-room exercise, however, substitutes an inexperienced, untrained leader for the teacher, and is of less value as a teaching exercise than work supervised by the teacher. Unless the thought movement is extremely simple, many things will be treated superficially and left incomplete. Whenever the lesson materials are important the socialized recitation should not be used, because its main outcomes are modifications of personality and not items of information. The changes in individuality that result are important enough, nevertheless, to warrant a more extended use of this form than is the rule at present.

Unless the teacher has the work of the socialized recitation well planned, the activities are liable to become wasteful of time and energy. The pupil leader is at a loss to know what to do, and the pupils find the novelty of the situation its chief attraction. Nothing seems to be more discouraging and aimless than such a class-room exercise under the direction of the wrong leader. The teacher should not attempt this form of teaching with immature pupils. Neither should it be used at the beginning of the school year, before the pupils and teacher have developed a spirit of coöperation. To do so is to invite trouble and disorder. At the beginning of the year the teacher must rely upon more routine methods, unless she is acquainted with the class as the result of a previous term's work with it.

E. Stimulation of Pupil Responsibility.

Closely related to the activities of the class-room, and leading itself more to the development of the best phases of individuality than the socialized recitation, are the devices that stimulate pupil responsibility. There are phases of school life in which pupils may do much more than teachers to eradicate evils. This is because these evils exist mainly on account of a social attitude of approval, or amused interest, on the part of the pupils toward these questionable practices. Thus it sometimes happens that many pupils almost approve of cheating or "cribbing" in school work. When this is the case the teachers face a very difficult problem. The best solution, and in fact the only effective one because it helps by training for life, is to change the pupil attitude. This can be done best by some form of pupil responsibility in such matters.

The best form of pupil responsibility is what is known as pupil coöperative government. This has all of the machinery of the other form, pupil self-government,—president, council, constitution, by-laws, etc.,—but expressly implies that it is a device the purpose of which is to secure for the teachers the coöperation of the pupils in those matters that are solved most easily with their aid. Thus it has been found that the question of honesty is a vital one of this nature. Similarly, school authorities have struggled with the problem of

tardiness with little success until the pupils themselves were enlisted in the struggle, when the problem vanished. Many things too numerous to mention are handled best by this plan.

In pupil coöperative government the pupils are made responsible for the control of such matters. The teachers are consulted whenever there is any doubt about the line of action to be taken, but at other times the pupils act on their own initiative. Further, the pupils recognize that it is no violation of their rights when the teacher takes charge of a situation that is beyond their control. As a result, the pupils measure up to the demands and direct their simple affairs themselves and an attitude of justice and respect for the rights of others becomes habitual. This is real training for citizenship and develops the proper kind of individuality.

Pupil responsibility is developed also by means of such organizations as boys' and girls' clubs, literary societies, and nature-study clubs, which band the pupils together for common ends. Effective organizations of this type are the Boy Scouts and the Camp-Fire Girls. These latter, however, depend so much upon the type of leaders available for their effectiveness that they are limited in their field of service. The organization of their ideals is so complete, however, that conscientiousness and devotion to the group by the leader are the most necessary traits. Because of

their voluntary nature, they will always be handicapped by the lack of leaders who will be willing to devote their time and energy to the work.

IV. MORAL TRAINING AND DEVELOPMENT OF INDIVIDUALITY.

In the most comprehensive use of the terms, these two ideas are almost synonymous. The type of individuality needed is that which will be of the greatest service to society. This is a moral individuality. Therefore those methods that have just been considered as of value in the development of individuality are also of service in the right kind of moral training. As usually thought of, however, moral training is more dependent upon the inculcation of the right ideals and emotional reactions than is the development of individuality in its general aspects. This makes it worth while to consider the scope and methods of moral training briefly, at least.

V. SCOPE OF MORALITY.

Morality concerns itself with all types of conduct that influence human happiness. This implies that the concept has a much broader meaning than is given to it in most discussions. Morality is social as well as personal, and moral training must provide for both phases. It is not enough to develop the virtues of prudence, self-control, industry, punctuality, courage, temperance, honesty, and kindness. These things are

elemental and make no provisions for the new problems of life. In addition, a pupil must have social virtues and right attitudes. He must be patriotic in the larger sense of world fellowship, must demand purity in politics, must insist upon the elimination of such social and industrial wrongs as improper housing conditions, commercialized vice, inadequate wages, and unsanitary conditions of employment. These are some of the newer moral problems that must be faced. Moral training is not broad enough if it makes no provisions for the new problems of social morality that arise frequently in our rapidly evolving social order.

VI. PRESENT STATUS OF MORAL EDUCATION.

In the past the school has done little, consciously, along the line of moral training, except to provide incidentally for some phases of personal morality. Pupils were drilled in such virtues as punctuality, industry, and obedience; but chastity, filial duty, and other desirable modes of reaction received little attention. Any preparation for social conduct given was presented by chance and without any foresight on the part of teacher or curriculum-maker. Present-day vital social problems, such as war profiteering, gentleman's agreements, strikes and lockouts, and unrestricted submarine warfare, need to be solved just as much as the older problems of short weights, indolence and tardiness. The fundamental problem of moral training is to get pupils to accept the standard of right as a guide to conduct.

When they recognize that right action is the best, the only problem remaining is to decide what action is right. This problem is an important one, and must be solved on the basis of information. Adequate information can not be given without a definite plan.

VII. DIFFERENT OUTCOMES NEEDED AT DIFFERENT AGE LEVELS.

The teacher's task with the younger children consists mainly in the formation of right habits. Pupils must learn to do the right so often that it becomes a habit. They should form habits of punctuality, industry, truthfulness, cheerfulness—a complete list of virtues would be lengthy—in order that they may have the proper foundation for more advanced moral training. Above everything, they should form the habit of doing right, taking their criterion of what is right from established authority. Along with right habits, pupils must acquire a sensitiveness to the approval of right and disapproval of wrong. This means that the emotional sanctions of right conduct must be an important factor in the early school and home training.

Until the onset of the changes of adolescence, children accept external authority as the primary criterion of right and wrong. Sublime faith is manifested in the wisdom of parents, teachers, and other adults. After the broader outlook of puberty has appeared, there is a tendency for a shift to internal authority, to the decisions of their own minds, as the guide to

conduct. This means that pupils of the junior and senior high schools require a different treatment from that accorded younger children. Moral training for them must emphasize, more and more, the informational side of right conduct. The problem no longer is to get pupils to accept the standard of right, if earlier training has not been entirely neglected, but rather to decide, "What is right?"

VIII. METHODS OF MORAL TRAINING.

The methods of moral education are much the same as those of ordinary education. The teacher must drill the pupils to form moral habits just as carefully as in the forming of other habits. Drill lessons of the intensive kind seldom can be given in moral action, but many of the rules of habit formation apply to the repetitions necessary. The principles pertinent to the development of the emotions also aid in imparting right moral attitudes. It is a mistake for teachers to expect purely intellectual teaching to suffice. They must make sure that the right moral attitudes are imparted; for, as has been pointed out already, one of the fundamentals of a good moral character is a hearty allegiance to right as a duty. The information necessary to a decision of what is right can be imparted as information is imparted generally.

Most discussions of moral education make so much of direct and indirect methods of instruction that it is worth while to consider them briefly. The direct

method is that form wherein the teacher tries to impart moral virtues by discussing moral lessons. Too often this implies an extended exposition by the teacher on the topics of the day. It is a bit of *preaching* by a layman. Moral implications are drawn that are found only by the use of a vivid imagination. These are not felt by the pupils, and consequently do not influence their conduct in the least. The direct method has the weaknesses of all forms of expository teaching. This concept of direct moral teaching has few ardent advocates. Unfortunately, its deficiencies have blinded many educators to the value of any systematic attempts at moral instruction.

The indirect method has been advocated ardently because it seemed to be the only solution. This plan emphasizes the influence of example and incidental crises, which are treated "when the iron is hot," as methods for moral education. These seem to bring quick results and are prized accordingly. Personal examples are valuable because they apply the principle of the radiation of feeling attitudes. Teachers live, and their unguarded moments, when they express their true feelings, are caught by the pupils for better or for worse. This radiation of emotional attitudes is the key-note of the method needed for imparting moral standards, and it is the main thing lacking in direct moral instruction of the exhortatory type. The reason for this is apparent when it is considered in the light

of the discussion of the development of the emotions presented in Chapter IX.

What, then, shall be the attitude adopted toward moral education? The fundamental thing is that the teacher must analyze the needs into outcomes and work accordingly. The methods used must be suited to the outcomes desired. The greatest defect in the so-called indirect method of teaching is that it makes no provision for a systematic series of outcomes. If moral education is to have a definite objective, the materials of instruction must be graded just as carefully as the materials of arithmetic or history. The organization can not be left to mere chance, which will bring a few situations that are suitable materials for moral education. This is even more true of the adolescent period, during which the information must be imparted that will furnish an adequate basis for later moral judgments.

IX. THE INFORMATION NEEDED AS A BASIS FOR MORAL JUDGMENTS.

The problem of the selection of the materials that will furnish a basis for the moral judgments of life is one that is almost a virgin field as far as the high-school work in general is concerned. In most schools little is taught that has a real bearing upon social morality. To be sure, some teachers of civics have tried to build their courses around the duties of the

citizen rather than around the articles of the Federal and State constitutions. Such courses should be the rule rather than the exception. History also sometimes is used to furnish materials for moral training. The really important subjects, however, aside from civics, generally are neglected. To prepare them for future problems of social morality, all high-school pupils should be taught some of the practical elements of economics and sociology and should consider some of the practical problems of moral conduct. This is a pretentious program; but, when relative values are considered, it is of more worth in life for a pupil to justify taxation by presenting the arguments of economics than it is to remember how many wives Henry the Eighth had or to translate a page of Cæsar. The ability to explain the evils of our present system of penal treatment probably will help more in preparation for a useful life than the ability to recite choice selections from Spenser's *Faërie Queen*.

X. INDIVIDUAL DIFFERENCES AND MORAL DEVELOPMENT.

One of the reasons why teachers are so confused by the tasks of moral training is that they have overlooked the influence of individual differences. Pupils are no more alike in the ability to respond to the approval and disapproval of others than they are in the ability to learn the multiplication tables. Likewise, they differ markedly in the power to discriminate right

lines of conduct from those that are undesirable. Teachers have worked in the past without taking these facts into account, and have been disappointed when results apparently were not secured. Although three fourths of the class benefited by the teaching, the fourth that did not made itself so conspicuous by its misconduct that the three fourths were forgotten. Teachers are not alarmed when their efforts fail to teach Henry the binomial theorem, but if Henry is delinquent in truthfulness or honesty after they have talked about these virtues, they assume that moral instruction is of no value.

SUMMARY

Schools in general have neglected to provide a comprehensive program for the development of pupil individuality, and the result has been the growth of many anti-social individualistic types of personality. Instead, the schools should aim at the cultivation of social individualities that will be suited to a life of social intercourse.

The development of individuality in its general aspects may be influenced markedly by the treatment of the class as a social group. The socialized recitation is one of the common methods for securing this end. The stimulation of pupil responsibility through pupil coöperative government is another.

Moral training and the development of individuality may be considered synonymous, though they usually

are not so considered. Morality includes the problems of social morality as well as those of personal morality. School efforts have been concerned mainly with the latter and have neglected the former. Moral education must aim at different outcomes at the different age levels of the pupils. With young children habits and routine actions of the right kind must be sought. With adolescent children the informational basis of moral judgments must be given. The methods of moral education must be adapted to the outcomes desired. All methods that have value should be used. The most important thing is the careful selection and grading of the outcomes desired and the provision for the information needed for an adequate solution of the main problems of social morality that demand consideration. Individual differences make it impossible to secure perfect moral responses from every one, and the teachers should overlook the exceptions and work for the largest per cent. of correct responses possible.

Suggested Readings

MEYER, DURANT. Problems of Conduct. Parts II, III, and IV. This should be read by those who want to learn what one of the leading authorities in ethics thinks the scope of morality includes.

ROSS, E. H. Moral Education. A very comprehensive and modern book on the subject, although written nearly two decades ago.

STRAYER, G. D. The Teaching Process. Chapter XIV.

A discussion of moral training as the problem is presented by the pre-adolescent age.

Exercises

1. What moral virtues can children below the age of eleven or twelve be expected to manifest in their action?
2. When does the social individuality manifest itself in the class-room? Do fourth-grade children show it?
3. Visit class-rooms, and note the expressions of individuality of the pupils. Which ones would you consider undesirable? Which ones are desirable characteristics that have been misdirected?
4. What is the significance of cliques and gangs as expressions of the development of individuality?
5. Make a list of the more important moral virtues that a twelve-year-old boy or girl ought to have as a foundation for right conduct.
6. Give ten problems of social morality that are not provided for by the schools at present.
7. It is often said that high-school pupils are in the idealistic stage. What does this mean? If it is true, what opportunities does it present the teacher for fundamental moral training?
8. How may it be worth while to lead pupils to make high moral resolves, even though there is no

opportunity for them to put these into practice at the time?

9. What school situations offer very good opportunities for moral training and the exercise of moral judgment?
10. What is the place of corporal punishment in moral training in a community that believes in its use?
11. Why can not the personality of the teacher be relied upon solely for moral training?
12. What danger confronts the teacher in the use of stories and literary selections as media for moral instruction?
13. Which is of more worth as a means for moral training, the system of examinations in which the teacher does police duty to keep pupils honest, or the honor system in which the teacher is as inconspicuous as possible? Why?
14. Why is it necessary sometimes for teachers to take the initiative in matters of pupil government that have supposedly been delegated to the pupils?

CHAPTER XIII

TEACHING PUPILS TO STUDY EFFECTIVELY

I. NEED FOR STUDY TRAINING.

ANOTHER one of the recently recognized tasks of teaching is the problem of training pupils to study. The need has existed for ages, but it is only within the last few years that psychology has made enough progress to enable teachers to attack the task intelligently. Lack of a proper understanding of mental phenomena left the study problem in the same condition that it left many of the other difficulties that confront pupils and teacher. Anything that was done was the outcome of chance success resulting from trial and error, or was the result of imitating others. There was no possibility of attacking the obstacles intelligently, because little was known of the psychology of the learning process. At present the situation is better, and teachers can make a start with the work, although there is much to be done yet before trial and error will be eliminated entirely.

Pupils often do not learn how to study effectively unless they are given definite training along that line. All that most of them do while studying, when untrained, is to read. If a lesson is assigned for study,

they read the task through two, three, or more times. The last time they go over it, the procedure is almost the same as the first, only a little more rapid. This is not real study. Study involves discrimination and the selection of related materials, which is much more than reading. The need for real training in study methods is very great, for many boys and girls come to college quite unprepared to do efficient independent work.

No one is really surprised at this deficiency, because the technique of study has been so poorly understood by teachers themselves. Brilliant individuals find one or two readings of a lesson enough, but the average mortal must do much more to master it. Since most of our teachers are those who were the better scholars in school and college, it is a common practice for teachers to assume that, because reading a lesson was studying for them, it will suffice for others. This has proved to be a false assumption, as has been shown by investigations that have been made of the study abilities of public-school pupils.

II. NATURE OF STUDY.

The term study represents one of those concrete ideas that every one recognizes in the act, but that it is hard to define. Study is what a person does when he assimilates an idea or the experience of another person. It involves activity that is directed independently by the individual studying. The activity may be mental, or both mental and physical. Its purpose is to improve

the individual's situation in life by providing him with knowledge or habits that will be of service. It may take several forms, such as forming habits, memorizing, problem-solving, and logical thinking.

III. PURPOSE OF TRAINING HOW TO STUDY.

One of the most valuable ways in which a teacher may serve her pupils is to train them so that they no longer need her services. This means that the best thing that can be done for them is to teach pupils how to study effectively. The ability to reason clearly for himself; to know how to make, break, and control his habits; and to be able to use all of his energies in such perplexing situations as life may have in store—these are the greatest benefits that a pupil may secure from an education. Such acquirements mean that he has learned how to study effectively. Equipped with these tools, a pupil may continue to educate himself without schools or teachers throughout the balance of his life. This is the goal; but it takes years of teaching effort to attain it.

IV. TECHNIQUE OF TRAINING HOW TO STUDY.

A. *First Essential.*

The first essential in training pupils how to study is careful assignments. Each lesson has its peculiar difficulties, and pupils must be prepared for these if they are to surmount them while studying. The time to provide for these is in the assignment. The assign-

ment should furnish all of the helps that any of the class members may need. It also should take account of individual differences by providing individual tasks for pupils who can be spurred to do their best work in this way. These individual assignments often stimulate pupils to unusual efforts because they enable them to bring to class facts that are new for the others.

B. *Second Essential.*¹

Proper study conditions are the next essential in training pupils to study. Human beings readily form habits of doing things at definite times in the day, and this applies to studying as well as to smoking and eating. The teacher should make use of this tendency by helping the pupils to plan out study programs that provide a specified time for each lesson of the day. These study programs do away with many tendencies to waste time, because pupils know just when each task is to be begun. Further, they obviate the danger of allowing one subject to be robbed of its proper allotment of time by the others.

An example of the detrimental effects of this crowding is furnished by the writer's experience in high school. Prior to the year that furnished the illustration, the writer's recitations had always been preceded by a study period. Upon entering this year's work,

¹ *How to Study Effectively*, by Guy Montrose Whipple, has been used upon for most of the material presented here.

two study periods were followed by two recitation periods. The first subject was exacting, and often received attention throughout both study periods, while the second was neglected. This led to a slump in scholarship in the second subject which was almost disastrous. If the teacher had recognized the problem and had planned out a study program with adequate time allotments, the trouble would have been anticipated and avoided. Teachers should foresee such difficulties and help their pupils over them. A study program helps much, because it leads to habit formation, and it is easy to do things that are habitual.

An environment free from distracting influences is another one of the proper conditions. In the school the study-room should not be used for recitation purposes if this can be avoided. The practice that requires a teacher to keep order in one class that is studying, while directing the recitation of another, is not favorable to effective study. It is a makeshift that should be tolerated only until other arrangements can be made. It is better if all pupils who are studying are brought together in a room designed only for study use, where they can be supervised by a teacher without other duties. Studying in the laboratory, where interesting demonstrations are in progress, is also undesirable. Pupils who must study under such distracting conditions find it difficult to do their best work. To be sure, the pupils learn many things incidentally from

the other recitations, but it is a question whether these compensate for the habits of indolence and divided attention that often are started in this way.

Home study often is ineffective because of occurrences that distract the attention of those studying. Younger children play in the same room. Older people converse, play musical instruments and games, and interrupt the work of those trying to study. These are some of the obstacles to be overcome. One reason why so many children must work under such handicaps in their homes is that the parents and other relatives are thoughtless. When the parents are at all in sympathy with the educational efforts of their children, the situation can be improved if the school authorities take the proper steps. The first step is to bring the attention of those in the home to the fact that the school-work requires some of the home time for study. This is often sufficient, because children frequently use their home study time so irregularly and so wastefully that their parents think the children do not need to study at home and make no provision for home-work. After the home recognizes the need for a study time, its coöperation may be sought in setting a definite time for it. Then suggestions may be given as to what constitutes the best study conditions and aids. People like to conform in educational matters as well as in other things, and teachers may create an atmosphere that makes it fashionable to provide good study conditions for the children. Public opinion may be brought to the

aid of study as well as to the aid of morality and righteousness.

Effective study is often impossible because pupils are not in good physical condition. A person's mental efficiency depends upon the working condition of his nervous system. The highest efficiency is secured by an ample supply of nourishing food well digested, plenty of sleep, plenty of fresh air, and adequate exercise. Teachers can do little to modify the first when deficient, but the others are affected more or less by suggestions from the teacher. Nervous energy is wasted by defective vision, hearing, or teeth, and by adenoids or obstructed breathing. These physical defects often are not noticed by parents and usually are removed when their attention is called to them. In addition to the necessity of a quiet place for studying, the light, temperature, and humidity should be favorable. The bodily activities should not be restricted by tight clothing, and the study desk and chair should be suited to the work for which they are used.

Another set of conditions is more personal. This is the group that may be called the *motions of study*. This means that there are a number of conditions that suggest the idea of studying to the trained pupil. An open book in front of him, a sharpened pencil and a pad of note-paper, the dictionary and other reference books within easy reach, all help to bring about the right attitude. On the other hand, some things tend to distract, as a new magazine that has not been read,

an interesting puzzle or game, and the graphophone or open piano. Each of these suggests something else than what is wanted. The best way to prevent these things from monopolizing or distracting attention is to put them out of sight. Other distractions that are liable to disturb are the talking of others in the study-room, the home movements, and noises. The pupil must meet these by using effort to maintain the attitude of study. In time habits will be formed that will make it easy to disregard these interruptions.

C. *Study Devices and Aids.*

In addition to the essentials for the training of pupils to study already discussed, the best work can be done only if the pupils learn to employ various devices and aids in studying. As was pointed out in discussing the nature of study, the work must be directed independently by the person doing it. There are many suggestions that will aid pupils in effective study. Teachers must bring these to the attention of the pupils, and at times even insist upon their use.

1. **How to use reference books.**—One of the first things that a teacher must do along this line is to teach pupils how to use the tools that are of service in studying. Pupils must be taught the use of tables of contents and indices. College students sometimes show a lack of training on this point, thumbing the pages when much time would be saved by using the index. Often it is necessary to give extensive practice in the

use of such alphabetically arranged sources as dictionaries, glossaries, and encyclopedias to insure that the pupils will be accurate in their use. The system of classification and arrangement of books and materials should be so familiar to all of the pupils that they not only can find what they want, but can return things to their proper places when they are through with them. In addition to being taught how to use reference materials, the pupils should receive careful directions in the assignment that will indicate where the desired materials may be found.

2. **Attitudes that aid.**—The attitude of always making a prompt beginning, when the time to start studying arrives, is a very good one. It tends to become a habit. Its importance is emphasized by a little personal contact with those who are always tardy. Pupils should form the habit of getting to work immediately upon taking the study position. The work is most effective if there is a thorough concentration of attention. Pupils inherit marked differences in ability to concentrate under distractions, but right habits help. All studying should be carried on with the intent to learn. Mere repetition without the intent to remember is a waste of time. The attitude of seeking a motive for the work is helpful, provided it is not carried too far. It is not always within a teacher's power to explain convincingly why a pupil should master a particular lesson. Motivation is of much help, however, and subjects of study that are almost impossible of

motivation are rather out of place in the curriculum. Above everything else, in effect upon study results, is the attitude of trying to improve one's self. The pupil who strives continually for self-improvement makes better and more lasting progress than the one who works merely to please the teacher.

3. **The personal equation.**—In order to do effective studying, a pupil must recognize his own capabilities and limitations—his "personal equation," in other words. No pupil should work himself into a fluster or worry, trying to keep up with more capable members of the class. He should find the pace suited to himself, and maintain it. Further, the pupil should be taught to discover his best method of studying when several tasks of unequal difficulty comprise the lesson. Some pupils do their best work by beginning with the easy tasks, coming to the more difficult later. Others take the hard ones first and then do the easy ones. The personal characteristic should be found out by experiment. This personal evaluation should be carried to the point where the pupil recognizes his difficulties in each lesson. These then may receive a little extra attention and be removed.

4. **Procedure in studying for knowledge.**—Much of the studying that pupils do is for the purpose of acquiring knowledge. There are many tricks of procedure which, when used, render this work more effective. The first bit of technique that pupils should be taught to apply is to always review the preceding

lesson when beginning to study. This helps to recall the material later, arouses interest in the present day's task, and brings back any hints or suggestions made by the teacher about points related to the new lesson. When beginning the new lesson, the first procedure should be a rapid preliminary survey of the new material. This will bring out points of familiarity and will help to keep the items unified. Pupils often are not trained to read rapidly, and teachers may devote class periods very profitably to training in rapid silent reading. When the present campaign for the better teaching of silent reading has run its course, it may be no longer necessary for the teachers in the junior and senior high schools to do this; but, until then, it must receive attention from them. Periods of supervised study may be given over entirely to this work.

Another thing that pupils must be taught to do is to carry the learning of all important things beyond the point necessary for the immediate recitation of the day. This is because memories fade rapidly at first and more and more slowly later. If a fact is over-learned, as it were, the memory of it may fade somewhat, and yet it will be vivid enough to be recalled when needed.

The practice of leaving cues, when interrupted in studying, so as to be able to tell where the work stopped, is very helpful. A few words jotted down, telling what should be done next, aids in returning to the task with the minimum of wasted effort.

When a pupil has read a paragraph or section carefully once, on his second reading he should pause and mentally review what he has read. If the material is very difficult, it is a good plan for him to write down the condensed thought to make sure that it is clear. When this has been done for the entire lesson, it requires but little trouble to prepare a synopsis or outline from these notes. When the thought is more simple, marking the book may take the place of notes. The important ideas may be jotted on the margins of the pages when a different wording from that given by the author is wished. Exercises that require the pupils to do these things must be included in any work that aims to train pupils to study. The device of outlining has proved valuable in college teaching. The writer has known teachers of psychology who required their college classes to outline entire text-books, and to hand in the outlines for correction, as a part of their study work. The results secured were very much worth while.

Closely related to outlining and underscoring is the ability usually called annotating. These activities are all much the same from the mental point of view, though annotating carries the process to a more perfect conclusion. To annotate, a pupil must not only condense the thought of paragraph, section, or article, but must put it together in a form that will be clear and convincing. Pupils should be taught to prepare short, pithy condensations of paragraphs, sections, and top-

ies. This is another exercise that may be used with success in supervised study work.

5. **Procedure in drill work.**—With the older public-school pupils teachers do not assume the responsibility of directing work of memorizing and habit formation, as they do in the earlier years. The burden rests more upon the individual pupils. If these are to work effectively they must use the best procedure. It is well for them to know why they are drilling before they start the work, because motivation is of value. Then they must secure a correct start. This must be followed by repetitions. It is a good plan for each pupil to adopt some plan or device that will record his progress systematically. In this way he may be led to strive to improve his previous record and thus find the repetitions more interesting.

The pupil should adopt that form of activity in his studying which is most like the form in which the finished product is to function. This saves relearning, which is a wasteful process, when a partially new form is involved. Thus, for example, a pupil should learn to spell by writing words, and to swim by actually going into the water. Formal drill exercises, such as are given sometimes in school subjects, are of doubtful value if indulged in to any extent.

Pupils should learn to distribute the time devoted to lengthy drill exercises over several periods. It has been found that this is most economical. Drill exercises should seldom last longer than fifteen or twenty

minutes for most individuals. There are differences among pupils in this respect, however, and each should be led to discover his own peculiarity.

6. **Intelligence must be used.**—It is not to be supposed that devices and aids alone will suffice to insure effective studying. The pupils must be taught to use their intelligence. This is especially true in mastering a group of knowledge materials, for the recognition of values is one of the essentials. Every page of printed matter contains many ideas. These must be weighed and analyzed until those that are relevant to the topic in hand are selected. A recent study of reading has shown that reading is largely reasoning. An individual who can read well, choosing the ideas that were in the mind of the one who wrote the selection, is generally one who can reason clearly. This is one of the important aspects of intelligence. Poor students are generally poor readers, and poor results are shown in their scholarship because they do poor silent reading. This means, then, that teachers must emphasize discrimination of ideas in teaching silent reading. Pupils must learn to evaluate the reasoning and thinking of others, as well as to get the meaning that others intend to give. A large part of the study work should consist in making hypotheses, gathering data, and verifying the conclusions.

When the pupil has determined the relative importance of various ideas, he is in a position to emphasize the important ones, to the neglect of the others, in his

study. It may be necessary to learn the insignificant for the day's recitation, in order to make the important ideas perfectly clear; but the latter must be mastered for future use. This sensing of relative values is one of those abilities that are found only where there is intelligence. It is a mark of good mental ability. Pupils can be trained to recognize its importance, and thus can be stimulated to develop themselves to the full extent of their capabilities along this line.

7. *Resting.*—Many lesson tasks are so lengthy that it is impossible, or undesirable, for pupils to attempt to complete them at one time. Much more work can be accomplished if pauses of the right kind are introduced intelligently into the doing of many of the school tasks than by the usual continuous methods. If the work is easy and filled with variety, changing in character from minute to minute, it may be continued profitably for an hour or two without interruptions. However, if the task requires concentrated attention and is highly productive of fatigue, pauses must come every fifteen or twenty minutes if the best work is to be done. There are, however, great differences between individuals in this matter, and these variations must be considered. Some pupils take longer to get started and can work longer after they get into the task than can others. The pauses should not come so often nor be so long that they interfere with a renewal of the task. It takes a few minutes for every one to get started to work and to attain the greatest efficiency—to get in

the "swing," so to speak—and this momentum is lost in rest periods. Therefore pauses must not be too long, or it will be like starting the work over again when it is renewed. They should be just long enough to refresh without allowing the momentum to be lost.

Another point of importance is that the mental activity that a person indulges in at one instant affects the retention of that in which he has been engaged at the next preceding moment. If the two are related, they are remembered better because they were presented to the mind successively. If they are different, each tends to make the other fade and be less well remembered. When this fact is applied to resting, it implies that when a pupil rests from hard work the only real rest is idleness, thinking of nothing purposeful. Anything serious that is thought about not only uses nervous energy but tends to blot out what has just been learned. The best rest would be something in the form of light physical exercise. The pause should never be filled with anything very exciting or disturbing, because this will tend to destroy all nervous impressions that have been made recently and will interfere markedly with the making of permanent new ones in succeeding moments. The detrimental effects of holiday vacations upon the teaching of the days just before and after is due primarily to the change in character of the mental activity with which the rest period is filled.

8. **Applying knowledge.**—One of the best ways to make sure that things learned will be remembered is to use them. Pupils may be taught to use various devices to compel themselves to think over the lessons they have studied. Some of these, outlining and marking the book especially, have been mentioned. Another device that is of value is the plan wherein each pupil prepares a list of questions on the lesson, and brings his list to class for the purpose of putting the questions to the other class members. The practice of thinking out original, concrete illustrations for all general principles and rules is valuable also. If a pupil seizes every opportunity for such work and creates as many opportunities as possible, many things will be retained that are forgotten ordinarily.

V. SUPERVISED STUDY.

Thus far the discussion has been devoted, in the main, to the methods of study that are most effective. These methods are the first essential a teacher must know when training pupils to study. The results of these methods indicate the list of specific outcomes the selection of which, as has been pointed out earlier, is needed before a teacher can make a wise selection of teaching methods. Training pupils to study is primarily a problem of meeting individual peculiarities; hence it does not lend itself to the ordinary form of class-work so well as do some of the other problems.

In spite of this, much can be done in the regular class-work. The common form that the training of pupils to study is taking is what is known as supervised study. This movement is somewhat new, and is in a state of flux and experimentation. A few things seem to be manifesting themselves clearly from the general uncertainty, however.

A. *Need of.*

The first thing that is at all clear is that there is a great need for an improvement of the study methods of public-school pupils. This is true especially of the poorer students. These do not make good use of their time even when careful assignments are made. Teachers may tell such pupils how to study, but they seem unable to connect instructions with practical application. They need to be taught individually how to make use of the suggestions they receive. This inability to make use of instructions is noticed especially in the case of home study. Home study is often very inefficient and unsatisfactory. Parents and older brothers and sisters often attempt to aid the one struggling with the work; but their aid seldom takes any other form than doing the work in order that the one studying may copy or imitate it. This is of little value in bringing about that independence in studying which is the chief end sought in this work. The home environment is an obstacle to good study work in other ways; hence it is often necessary that something be

done to remedy the situation. Supervised study is the outcome of the attempt to remedy matters.

B. *Value of.*

The superiority of supervised study over self-directed study has been shown by so many investigations that it is accepted now as an established educational fact. The lack of a greater difference between supervised study and the other kind than that found in some of the experiments may be due to the fact that so few teachers themselves really know how to study, that it was impossible to get competent people to supervise the study work. It may be explained, also, by the fact that possibly the pupil sections chosen for the experiments were composed of superior students. These are the ones who profit least from supervised study. For the average and slow pupils, supervised study has been found to be of much value. It provides for their individual peculiarities and shortcomings.

Supervised study is of most value in the junior high school. The work here has reached a grade of complexity and difficulty that requires good study methods. In the later years of the senior high school the pupils have discovered many study devices; hence not so much remains to be taught them.

C. *Plans of.*

There are many plans of supervised study, which vary but slightly from one another. Before discussing

these, however, it will be best to present some of the practical suggestions for the introduction of supervised study that Mr. Hall-Quest¹ has made:

1. Introduce it gradually, one subject at a time. This enables the principal to observe its benefits and to become familiar with necessary adjustments.

2. Use the divided period. Any other method is confusing at first. It is important that each teacher supervise the studying of her pupils, and this can best be done during the recitation period.

3. If at all feasible the periods should be lengthened to fifty minutes in each subject (for high school), and a flexible amount of time in each period be spent on supervising the study of the assignment just given.

4. Teachers should devote as much time to the assignment as they do to the recitation proper. Supervised study is really an elaborated assignment, during which the pupils are given opportunity to try out the teacher's explanations in her presence.

5. Home-work should be reduced, but at first retained. Eventually, for the grades and first two years of high school it should be abandoned entirely.

6. In addition to the studying done in the divided period, pupils should be required to study during vacant periods. This provides ample time for the preparation of any assignments that are at all reasonable.

7. Time and effort will be saved if the teacher breaks up her classes into three groups, according to ability. Her brightest pupils will need but little attention. Her other two groups—the average and the inferior—will demand most of her time.

8. Teachers should aim to ascertain from each pupil what difficulties interfere with studying, and then, knowing these, assignments and explanations should take these difficulties into account.

9. After the work in one subject has become fairly well adjusted the method should extend to all of them.

¹ *Educational Administration and Supervision*, March, 1916, p. 204.

10. Each subject requires its own type in study supervision. For this reason, teachers should know what are the almost inevitable difficulties in each subject, where they are usually found, and then the teacher should anticipate them so as to lessen their seriousness.

1. **The divided period.**—This is the best plan for supervised study, when considered from several points of view. It is less confusing, because the same routine is used day after day. It affords ample time for both study and recitation when the period is fifty or sixty minutes in length, and a skilful teacher may do very good work with a forty-minute period. This form is often called the study-recitation, because both study and recitation work may be combined to occupy the period.

The way this is done is illustrated very well by the work observed by the writer in a seventh-year class in history in a junior high school. The work of the period, a forty-minute one, began with a study-discussion of the pages that had been assigned on the preceding school-day for home study. The pupils were asked, with books open before them, to point out the important things in the lesson. As each was considered, the teacher, by questioning, led the class to recall related topics in earlier lessons. Then they were instructed to underscore the important items and to write brief notes in the history note-books. Sometimes the important points were pointed out satisfactorily by the pupils. At other times the teacher made

such suggestions as caused the facts to stand out more clearly. At the end of twenty minutes the five pages that had been read at home were analyzed and underlined until the important things could be discovered at a glance. The class then was told to review this for the next day's repetition. Books were closed at this time, and the pupils were asked to recite on the parts analyzed on the preceding day and reviewed in the study period. This work was conducted just as any text-book recitation would be. At the end of twenty minutes more a page assignment of five and one half pages was made, which the pupils were asked to study for the next day, and the period closed.

This teaching exercise was an example of a good procedure for securing the ability to analyze the text-book and outline the important things. Other forms of study outcomes would require a somewhat different treatment. One thing, however, that may seem to disregard the requirements of good technique is the page assignment at the close of the period. The teacher, in conversation afterward, volunteered the information that she had found this the best plan. When the new materials were outlined in the class before they had been read, the pupils were inclined to skip all but the underlined parts when they studied. By assigning a page assignment for the period preceding the study-recitation, this difficulty was overcome. The pupils studied the new materials just as they always

had done, and then were well prepared for the study-discussion of the class period.

Other forms of supervised study than the study-recitation may occupy the time of the divided period. The study time may be devoted to helping individuals over their difficulties, to practise in some of the many forms of work needed in effective study, or to explanations by the teacher, amply illustrated, of some of the best ways to study. The greatest advantage of the divided period is that it allots to study the proportion of time that is needed to secure desirable results. Other forms often devote so little time to this work that they fail to produce tangible study outcomes.

2. **Once-a-week plan.**—Another plan for supervised study that has been used at times is the provision that allots one period a week to this work. On this day the teacher omits the regular recitation and spends the time helping the pupils to study. The work may take as many forms as there are kinds of study difficulties.

This plan is of more value with the more advanced high-school pupils. It does not provide sufficient time, however, to dwell long enough on some of the points of study technique to make certain that pupils know how to use them. When the supervised study work has been carried on for several years and pupils have mastered most of the hints, one period a week may be

sufficient to eliminate the few remaining study difficulties.

3. **Other forms.**—Many successful teachers used supervised study for years before the work had ever been called by that term, or at least before the term was used to any extent. All well directed laboratory work is supervised study. The laboratory teacher spends most of her time passing from one pupil to another, showing them how to find this or how to draw that. If this work is well done, study abilities, abilities to do independent work in the laboratory, are the outcomes.

When the teacher sends a class to the blackboard to work new problems in algebra or arithmetic, and supervises the work, she is using a very good form of supervised study. This is true especially if the time is spent in providing for individual differences and in helping those who have difficulty with the work.

D. *Suggestions.*

Supervised study should aim to train the pupils in those forms of study procedure that psychology has taught us are the best. These have been presented earlier in this chapter and need not be repeated. The most important thing, perhaps, is to secure an atmosphere of study. When this exists the pupil can do little but study. The way this affects one is shown by the feeling that one experiences when he enters the reading-room of a public library where many readers

are busy. The atmosphere is such that it suggests that one do likewise. The same is true of the school-room. The suggestions in Chapter II about the conditions of teaching apply as much to supervised study as to any other phase of the work. This means that all routine phases must be provided for in such a manner that there is no chance for time to be wasted.

In making suggestions to children about the way to do things, teachers must be practical. Too much assistance is not good, because it tends to make the pupils dependent. Further, it is a bad policy for a teacher to make a practice of devoting herself to individuals for any length of time while in charge of a class, because the other pupils will get into mischief. Individual assistance in class-time must be limited to a few words or pertinent suggestions. More extensive aid can be given in private consultation periods. On the other hand, vague, indefinite exhortation is of no value, because it gives nothing definite to the pupils, who need tangible things. Fortunately, a teacher can tell usually whether her suggestions are of value. The results are very objective, and improvement shows readily, as a rule.

SUMMARY

The present psychology of the learning process has shown that it is necessary to train pupils to study effectively. Further, it has been pointed out what must be taught them to attain this result. Study is

activity directed independently by the person doing it. Pupils should be so trained to study that the teacher will be no longer a necessity, and that, as a result, they can continue their education after formal school-days are over.

In training pupils for effective study, careful assignments are the first requisite. The second is the presence of proper study conditions. Pupils should form the habit of studying at definite times in the day. They should be provided with an environment free from distractions, both in the school and in the home. They should be in the best physical condition for study. They should learn to go through the motions of study promptly. As special aids they must be taught how to use reference materials. They should make use of the right attitudes, and each should learn his personal limitations and peculiarities. In studying for knowledge, the preceding day's lesson should be reviewed as a starting-point, the method of attack most suitable to the individual pupil should be used, all important points should be overlearned, and cues should be left when the work is interrupted, so that little time will be lost when the pupil returns to the task. Pupils should be taught to interline, to underline, to outline, and to annotate books in ways that are helpful.

In drill work pupils should use the suggestions that make for successful drill exercises. The form of activity learned should be as much like the final product as

possible. Drill work should be distributed over several periods if the work is lengthy.

In all work pupils must use their intelligence. Important things should be emphasized and the unimportant given less attention. Rest pauses should be used in a way that will conserve the pupil's energy without interfering with efficient results. Knowledge should be used as much as possible until fixed in the memory.

The best plan for teaching pupils how to study is through some form of supervised study. This is necessary under present conditions, and has proved to be valuable. The divided period is the best plan under most conditions, though the once-a-week and other plans may be of service. In directing supervised study the teacher should develop a study atmosphere and should be practical in her suggestions.

Suggested Readings

BAGLEY, W. C. *The Educative Process*. Pp. 316-322.

A brief discussion of the study lesson.

EARHART, LIDA B. *Types of Teaching*. Chapter XIV.

A chapter on teaching pupils how to study.

HALL-QUEST, A. L. *Supervised Study*. The work on the subject which should be consulted by those who wish a detailed treatment.

HARVEY, N. A. *Principles of Education*. Chapter XII
This chapter presents an analysis of the problem of training pupils in good study habits.

PARKER, S. C. *Methods of Teaching in High Schools.*

Chapter XVI. This chapter surveys the main early studies in the field of supervised study and presents a good bibliography of the literature.

STRAYER, G. D. *The Teaching Process.* Chapter VIII.

Suggestions are given that are pertinent to the study lesson.

WHIPPLE, G. M. *How to Study Effectively.* A summary of the psychology of study, expressed in rules

and comments.

Exercises

1. Plan out a practical system of supervised study for two of the classes of a school in the community in which you live.
2. Make a list of the things you would teach pupils to apply in their study work, beginning with those that you would teach first and ending with those that would be the last to be taught.
3. What exercises would you give to train pupils to select the important things from what they read?
4. What is the relation between training pupils to study effectively and training in application?
5. Will it ever be possible for the conscientious teacher to rest in the study period? Why?
6. What place does expository teaching have in the work of training pupils to study effectively?

7. Prepare a list of suggestions for the improvement of home-study conditions that might be sent to parents or be published in the local paper.
8. Prepare a series of exercises that will demonstrate to what extent pupils know how to study.
9. Prepare two assignments that aim especially at training pupils to study.
10. What suggestions can you make relative to helping pupils to form time-and-place study habits?
11. Name some of the school-room conditions that are distracting factors interfering with the study efforts of pupils.
12. What are the most important conditions detrimental to home study in your community?
13. How would you teach pupils to go through the motions of study promptly?
14. What are the main characteristics of an atmosphere of study?
15. How do pupils know when they have overlearned anything?
16. Prepare a series of practical exercises in outlining and annotating.
17. What evidence have you noticed of the detrimental effects of fatigue, which could have been eliminated, partly at least, by the wise use of rest pauses?
18. Outline an experiment that will show the superiority of supervised over self-directed study.
19. What forms of study activities can be taught best

by the divided period? By the once-a-week plan?

20. What forms of supervised study did you practise before you read an educational discussion on the topic?

CHAPTER XIV

MEASURING THE RESULTS OF TEACHING

THE results of teaching are a very intangible product. It is only through most careful checking that a teacher has any conception of what has been accomplished. This is because the results of teaching are manifested as mental changes in the minds of the pupils. These changes are shown only by behavior, and human behavior is prompted by many factors. If these factors favor the teacher, results may be shown that are very good, and *vice versa*. To measure the results of teaching efforts accurately is a very different problem when the teacher is trying to do it for her own satisfaction. When the superintendent or community are trying to do the measuring, the task is even worse. In either case, personal opinions may be so interwoven with the actual results that an adequate estimate of the real situation seldom is secured.

Teachers should be able to measure the results of their work so that they can modify their methods as the need arises. Every teacher must keep in constant touch with the class-room situation if the best work is to be done. This is necessary because a teacher seldom meets exactly the same situation twice. The subject-

matter changes; the pupils react differently; the light, ventilation, and humidity vary; each of these factors contributes its mite of influence. Then also there are the factors outside of the school, which at times are very potent. Under such conditions the teacher who follows the same procedure day after day, imagining that she is securing the best results but never checking up to learn the real state of affairs, often discovers later that she was very much in error. All of this implies that teaching of a high quality can not be done consistently unless a teacher knows how to measure the results of her work.

METHODS OF MEASURING TEACHING RESULTS

I. DAILY RECITATIONS.

The work of the daily recitation is often considered to be the most effective measure of the results of teaching that can be used. Teachers mark pupils on the work that they do day after day, and consider these marks to be measures of the teaching that has been done. In reality, daily marks are, to a large degree, measures of the work that the pupils have done in lesson preparation, its thoroughness, accuracy, and punctuality. The teaching that has been done may be evidenced by these criteria, but often it is not. When the teacher or pupils contribute outside material to the recitation, and when the teacher helps the class to organize facts, or presents a lesson in appreciation, there is little opportunity to determine definitely

whether the pupils have been taught anything. In other words, measuring the results of teaching often conflicts with teaching, and may be confused with the measurement of the results of the pupils' efforts.

Some teachers devote the greater part of the recitation time to measuring results, and do but little teaching. In these cases the fault lies in a slavish use of the daily record-book. Teachers used to think that it was necessary to mark pupils every time they recited. This procedure leads to a routine use of the time that is not the best. Unless the work is such that each pupil makes an extended recitation, as in Latin or French translation work, the entire class thought is interrupted every time the teacher records a mark. Instead of doing this, it is usually better for the teacher to spend a few minutes at the close of the class period in estimating the work of the different class members. It must be admitted that such estimates are not so reliable individually as if they were made at the time the pupils recited; but if they are made day after day they will be very trustworthy in the end. This is true especially if they are made without consulting the previous day's records.

Some teachers mark daily work only once a week. This may not be often enough to secure reliable estimates, but the chances of reliability depend more upon the extent to which the teacher tries to eliminate preconceived notions than upon the frequency with which the marks are recorded. With the exception of

the review lesson, the marks of the daily work are no measure of the degree to which pupils have mastered the lesson facts for later use. Some pupils learn for the day only and forget in a week. These make the best showing in the daily work and the poorest in the monthly or term tests.

II. EXAMINATIONS.

The usual method of measuring the results of teaching is by the use of examinations. Although there was a time in the past when this teaching exercise was in ill repute among educators and was omitted from books on teaching technique, the rank and file of the profession have always found it valuable. In spite of all the criticism it has received, it is still an important device. It will be considered in its various aspects, in order that teachers may know how to use it to best advantage.

A. *Value of Examinations.*

Examinations are of the greatest value because they may be fairly good measures of teaching results. Although the situations created by the conditions of the examination are highly artificial, they are no more so than most school-room situations. The pupil may not be called upon to use the things in later life in the way in which he is asked to use them in the examination, but the examination is no more divorced from the practical than is the average daily work. As a

measure of teaching results, the examination very often reveals weaknesses that were not suspected. Frequently teachers have asked what they considered simple questions, only to find that the class, which had shown great interest in the discussion, in reality knew very little about the topic.

In addition to this checking function, the examination is a valuable teaching device. The definiteness of the examination work and its objective nature stimulate pupils to make strenuous mental efforts before it arrives. This preparation for the final test is effective because things that are studied under such conditions of active attention are remembered best. The result is that the examination leads pupils to organize their knowledge in the most complete fashion. When the written examination follows a thorough oral review, the teaching process, in so far as it is concerned with the imparting of knowledge, is most effective. To omit the oral review and provide no substitutes is to miss much of the value that may be derived. In advanced high-school classes, teachers often find a list of questions that has been given to the pupils to aid the review a very good substitute. The highest value would be realized if time were given in class to a discussion of these questions prior to the examination. To realize completely the organizing value of the examination, a part of the time of the period during which the papers are returned should be given over to a discussion of the errors and of the correct answers of the papers.

B. *Frequency.*

Teachers vary greatly in the degree of attention they give to examinations. Some are so painstaking in their teaching work day after day that they never find time for such written work. Others seem to be examining all of the time. The first class of teachers needs to learn to hurry over the details sufficiently so that they can return for a review and can put things into the right perspective. The other class should place a little less emphasis on written tests and devote more of the time to oral discussion. The ideal is to strike the happy medium between over-emphasis and absolute neglect.

As has been pointed out earlier, a part of every recitation period that has been preceded by an assignment should be devoted to discovering whether the pupils have done what was requested. This can be done orally in most cases. The larger results that are the outcomes of the work of several days can be tested every week or two. These tests usually should be oral, because if written they overburden the teacher. At longer intervals, however, the examinations should be written, and there is little doubt that written semester examinations, if administered wisely and prepared for by adequate reviews, are decidedly worth while.

It may be necessary at times for a teacher to make provisions for excusing those for whom the examination might be too great a strain—the immature, the

sickly, and the over-conscientious. With a little tact, this can be done in most cases. Many schools have scholarship provisions that excuse the better pupils. Such provisions are very good, but they may be too sweeping. When pupils are excused from all written examinations on such a basis, the plan has been carried too far. A compromise plan would be better—one, for example, that excused pupils from the semester finals on the basis of the work that they did in the monthly tests. When pupils are excused from all written examinations on the basis of the daily recitations, it sometimes happens that they are entirely unprepared for such tests if they meet them later. In the light of the experience of such students in college, it seems unwise to permit them to go through the public school without meeting some obstacles of this nature.

C. *Types of Examinations.*

1. **Oral or written.**—Examinations may be classified into the two groups, oral and written. The oral examination is preferred by some teachers, because it does not involve a number of hours of fatiguing paper-reading to evaluate the pupils' work. Other teachers prefer it because it gives an opportunity for teaching as well as testing. Most pupils prefer written tests when these cover several weeks or months of work, because they seem more fair. In any oral test it is hard to ask all of the pupils questions of approxi-

mately the same difficulty. Further, in oral testing pupils may be unable to recall the answers to the questions given to them at the time. If the work is written, time is given to think over the subject and perhaps recall answers that were not remembered at first.

Written tests are more fair because all of the pupils are examined on the same questions. The written form permits the pupil to try his capabilities to a greater degree by answering several questions, while it is seldom possible to give a pupil more than one chance in an oral quiz. Oral tests are suited to small classes, but the written form should be used in large ones.

2. **Announced or unannounced.**—Another classification of examinations may be made on the basis of whether or not the pupils have had a warning that caused them to prepare for the test. Some teachers prefer to use the unannounced test, saying that it keeps the class on edge and constantly prepared. The degree to which it does this will depend upon the frequency of such quizzes. If they are very frequent they may do this; otherwise the pupils may take a chance and not prepare. The unannounced test does not measure much more than the daily work of the scholars, and is little used by teachers who are strong in leading the pupils to organize their knowledge.

When pupils know that a test is coming, they usually make a real preparation for it. This organization of knowledge is one of the important values of examina-

tions, and to neglect it is to fail to utilize a valuable teaching aid. It is probably better to inform pupils before any important test is to be made. Unimportant minor tests may be announced or unannounced, as the teacher prefers, this phase depending on the purpose for which they are given.

3. **Time limit or work limit.**—Written tests may be divided into two classes on another basis. They may be prepared in such a way that no pupil can complete all of the questions in the time allotted. The amount accomplished is determined by the ability to work rapidly against time. On the other hand, the questions may be prepared in such a way that every pupil has all of the time needed to do all he can. The difficulty of the questions determines the amount accomplished. These are the *time-limit* and the *work-limit* methods of testing results. In the first form of test the papers written by the different pupils are not commensurable unless all of the questions are of the same difficulty for all pupils. The other form is easier to prepare, but tends to be too easy for the brighter pupils. Examinations that are completed by half of the class but that are too long for the remainder are of doubtful commensurability.

Under most class-room conditions the work-limit form is to be preferred—though, in the long run, this question is of little importance under ordinary school-room conditions. It is of significance, however, where important future events depend upon the outcome, as

in college entrance and Civil Service examinations. The best form for these is the work limit, where all candidates have as much time as is necessary for them to do the work.

D. *Types of Questions in Examinations.*

The usual practice in examinations of the past has been to make them almost entirely tests of memory. In such studies of examination questions as have been made, nine out every of ten questions could be answered mainly from memory. This condition is inadequate. Some pupils become very skilful in remembering facts, but are entirely lost when they are asked to use them practically. In the field of knowledge the examination questions should not only measure how well the pupils remember facts, but they should also test their understanding and ability to use facts. A test that requires application is in reality a test of both remembering and understanding, because a pupil can not apply knowledge unless he remembers and understands it. There should be a more frequent use of questions requiring the use of knowledge in examinations.

The other forms of teaching outcomes that have been discussed in the foregoing chapters are found less frequently than the knowledge forms, and are much more difficult to test. The ingenious teacher can work out methods of measuring growth in appreciation

and other things. The field is so varied, however, that it will not be profitable to present a detailed discussion here.

III. MARKS AS MEASURES OF SCHOOL-WORK.

A. *Reliability of Marks.*

The value of marks as measures of school-work depends upon their reliability. This is a question that has never troubled the rank and file of the teaching profession. They have marked papers and oral work and have handed out the results of their efforts with a confidence that is amazing when the facts are known. If one questions the reliability of the marking of an old-time teacher, he is tempting fate indeed, especially if he be a pupil. As a matter of fact, the marks that teachers ordinarily give on examination papers are very unreliable. By this it is meant that, if a teacher remarks a set of papers that she has evaluated a few days earlier, without referring to the first set of marks, the second evaluation will vary by several points, on the average for the different papers, from the first. Further, if several teachers are asked to mark the same paper independently, their judgment will vary widely.

In the light of these facts, it may well be asked, "Which value is the right one?" It is usually assumed by statistical experts that the average of all of the marks is the true one. When teachers use the common per centile marking system, it has been found that

their judgment is reliable only within about five points. This means that when a teacher uses this system and marks different papers 84 per cent., 83 per cent., 85 per cent., or even fractions it out as 82.5 per cent., she is splitting hairs and is deluding herself into believing that she is securing greater accuracy.

B. *Factors that Produce Variability.*

A number of factors have been discovered that are responsible for this variability. The most important is the inability of teachers to distinguish closely allied degrees of merit. Thus if two papers that are of nearly the same excellence are given to several teachers, some will mark paper A as better than paper B, while others will reverse the order. Human beings can not discriminate infinitely small differences in merit.

The second factor that produces variability is the difference in emphasis that different teachers place upon the same thing. Some consider it right to give credit for the correct solution as well as for the correct answer in an algebra problem, while others mark entirely upon the answer and give no credit for method. This difference in emphasis is found in all the subjects.

The third factor that produces variability is the differences between the standards of different teachers. One teacher never finds any 90 per cent. or "excellent" work done by her pupils, while another marks half of hers 90 per cent. or above. Pupils recognize these characteristics, and Miss C is known as a low marker

while Miss H is a high marker. Teachers sometimes think that, unless a pupil does as well as they themselves can do, the work does not deserve above 90 per cent. Others think it reflects upon them if they do not mark high. At times, too, high marks are given as favors for good behavior, to encourage the pupils, or to please the parents.

C. The Best Marking System.

The best marking system is one composed of letters. It avoids the difficulties that have been pointed out by not pretending to make fine discriminations. Then, it may be used in such a way that each letter has a definite meaning. There is little practical value in a minutely divided scale such as the per centile. Teachers do not have the time to make a number of independent judgments and average them, and this is what is necessary if the per centile marks are accurate. When per centile marks are used, the illusion of accuracy is present. Pupils are elated if they are one point higher than their competitors, and an over-sensitiveness to marks sometimes develops. This tends to do an apparent injustice where pieces of work of the same degree of merit are marked differently. Further, teachers are often embarrassed by being asked to explain why they have marked similar pieces of work differently. Many schools have traditional anecdotes that tell of different pupils handing in the same piece of work to a teacher and receiving different marks on

it. If a letter scale is used, it is best not to use more than seven letters. Many prefer only five, using an occasional plus and minus to indicate finer qualities of merit.

D. *Distribution of Marks.*

How may letter marks have a meaning if they are not translated into a per centile system? This question has puzzled many teachers, and the usual practice has been to indicate the meanings of the letters in per cents. and in such terms as excellent, good, etc. Ideally, the letters should have a meaning in terms of rank. At present the patrons of the schools and many teachers are not ready for such an interpretation, but it can be introduced by any teacher who has the courage and tact needed by those who introduce innovations. Meaning in terms of rank is dependent upon the distribution of marks that is present.

The marks given by teachers generally, if plotted on a scale in what is known as a frequency curve, are distributed in a more or less regular form. There are a few very poor marks and a few very good ones. The balance are distributed between these extremes, with the greater number grouped around an average or central value. When shown graphically, the result is a curve somewhat bell-shaped. The curves of the marks given by individual teachers show all kinds of varieties. In the case of the high marker the bulk of the marks will be 90 or above on the per centile

scale, with a scattering down toward the passing mark. The marks of the low-marking teacher, on the other hand, would show a scattering of high and average marks and a grouping of low ones. In schools where a mark of 90 exempts from examinations, teachers find many students of that caliber and few of the ability indicated by 87 or 88. In a like manner, the passing mark is often the point where many marks are concentrated. In other words, marks are often not distributed regularly, but are influenced by extraneous factors.

In general, however, marks are most regularly distributed by teachers. Experts who have studied the problem say that when teachers mark pupils solely on the showing made in the work, without regard to exemptions from examinations, passing marks, etc., the marks group themselves in the normal probability, or bell-shaped, curve. If this be true—and few who have studied the question doubt it—teachers whose marks depart appreciably from this form of distribution are allowing themselves to consider other factors than the ability of the pupils. If they considered the average pupil to be indicated by a C, in a letter system of A, B, C, D, and E, E denoting failure, then there ought to be many Cs, less Bs and Ds, and a few As and Es. The exact proportion of each of these letters has been proposed by several writers. These proposals average about as follows in one hundred pupils: 5 per cent. As, 25 per cent. Bs, 40 per cent. Cs, 25 per cent. Ds., and

5 per cent. Es. This does not mean that the marks of every class that a teacher has should be distributed thus, but that, if there is no other factor at work that makes conditions unusual, the average of several classes would approximate this. Small classes, classes composed of selected pupils or of lazy pupils, and other irregular groups may show a different proportion of the different marks. In classes composed of twenty or more pupils selected at random, the distribution should be approximately that given above, unless the school adopts another standard.

In reality, however, it makes little difference whether the marks given by the teachers of a school are distributed in this proposed way or not. The fundamental thing is that the marks of all teachers in the school should be distributed alike. If one teacher marks high and another low, injustice is likely to result when scholarship rewards and honors are apportioned. Then there is the dissatisfaction of the pupils that must be considered. The differences in standards found among the teachers of a school system may be remedied by a little consideration of the marking question. A survey of existing conditions is the best way to begin an attack upon such a problem. When the existing situation has been disclosed and discussed, it is a simple matter for teachers to reach some agreement as to what should be the common practice. The determination of the average mark and the proportion of failures and honor marks may help matters much.

Teachers who differ from the others in the marks they give often try to justify their positions in various ways. When a class that is not extremely small makes a very high average on an examination, it implies that the questions were too easy or that the teacher who marked the papers was very lenient. On the other hand, it sometimes happens that an average size class makes a very low average on a test. This probably is an indication that the test was too difficult or that the teacher who marked the answers set too high a standard of attainment. Either would bring about the same result. Teachers sometimes draw conclusions about their own ability as teachers in comparison with some one else they know who is teaching the same work, rating themselves high because their pupils make higher average marks than the others. This is not justified unless the questions are prepared by the supervisor and the papers marked by a disinterested party. Extreme departures in marking are often the accompaniment of inadequate training and a sign of other deficiencies on the part of the teacher.

E. Suggestions that May Aid.

Accurate markings may be secured with any marking scale, the per centile or the letter scheme, if the teacher takes a number of independent marks of a pupil and averages them. The most important requirement is that each mark be determined without reference to what the pupil has done before. This may be done,

when papers are marked, if the name is not looked at until the quality of the work has been determined. This open-mindedness is hard to maintain when a teacher recognizes the handwriting of the class members, but the right attitude on her part will help much.

In marking a set of test papers it is often most convenient if a point scale is used. It is not necessary, however, that this scale have one hundred points. It may contain any convenient number, and the number of points would be determined by the number of questions and their subdivisions. Further, all questions need not have the same point values if they vary in difficulty. To illustrate, a test may contain four questions with four subdivisions in one of them. To mark this set of papers, a scale of twenty points for each question is most convenient. These point marks should not appear on the papers when they are returned, but should be recorded by the teacher for her own future reference. The papers may be marked in letters or per cents., raising or lowering the average until it conforms to that agreed upon by the school faculty. It is comparatively easy to translate the points into letters. All that is necessary is to rank the papers from the best to the poorest. Then the best will be marked A and the poorest E. The others can be distributed among the Bs, Cs, and Ds by counting down the proportionate number for each letter that seems best.

If a teacher does not desire to do such careful work,

the papers may be marked directly in the system in use by taking the average papers in the test as a standard. The others can be marked by reference to these. The fundamental thing in marking a set of papers is that the standard of the person doing the marking must not shift in the process. When the entire set can not be marked at one sitting, it is best to mark the first question in all the papers before marking the second. This procedure tends to keep the various factors more clearly before the marker.

It is often best not to put marks on individual questions in the paper. This avoids the continual hair-splitting comparisons and fault-findings in which some pupils are prone to indulge. Otherwise a teacher is requested frequently to mark the papers a second time and to revise the marking. Papers can not be re-marked without doing other pupils an injustice, because the standard of marking will shift. When the papers are marked in letters this difficulty is avoided, because the paper has but one value mark on it, and pupils can not question the general value that has been given the paper. This does not mean that errors should not be indicated on the papers. The teacher should do this carefully, even if no values are placed on the various questions. When papers are marked in a per centile scale, it is better not to try to discriminate smaller intervals than five points. Pupils dislike the letter scale sometimes because they do not realize the element of inaccuracy present.

Teachers may lighten the work required in reading the papers by what is known as sampling. It sometimes happens that pupils prepare papers systematically in a course. This means that if a teacher marks every paper carefully, indicating errors and putting a comparative mark upon it, the work will be burdensome. It may be made lighter by not trying to read all of the papers with the intention of marking them. Four or five papers read carefully and averaged give a better mark for a pupil than fifteen or twenty read hurriedly. A few accurate measures of a quantity are always of more value than many careless ones, because errors disappear in the average if they are due to chance. When this sampling is done by lot, and the pupils do not know beforehand that it is to be done, the results are very accurate. Of course, where it is necessary to mark the errors carefully for pedagogical reasons, sampling is of little help.

IV. STANDARDS AND SCALES.

Although the task is difficult, a teacher can measure the results of her efforts as revealed by the improvement in ability of the different pupils when compared with one another. When her work is compared with that of her colleagues, the problem is much more complex, however. Under present conditions it is extremely difficult to determine the relative efficiency of the different members of the teaching corps of a school system. There is often no standard or goal that will

give a definite basis for such a comparison. This obstacle has not prevented superintendents and patrons from rating teaching in rather general terms, terms that frequently have been absurd and are unjust to the conscientious teacher. These have been the *a priori* or subjective standards. More recently there has grown up a movement that aims to set up definite objective standards that eliminate the personal element and are more adequate. This movement is just reaching the stage where it is following definite lines. Much that has been done is of little service to the average teacher, but a few more years of refinement of the results will produce standards of great value.

A Priori or Subjective Standards.

The simplest and most absurd standard of this class is the attitude of the pupils and the community toward the teacher. This attitude does not depend upon the teaching ability of the person under consideration, but rather upon her ability as a good mixer, upon her political, church, and social activities. These may have no relation to good teaching. This does not mean, however, that the coöperation and respect of the community and pupils is not needed to make good teaching possible. These are a part of the conditions needed for good teaching, but may exist when the teaching is poor.

The kind of marks a teacher gives and the number of pupils promoted also have been used as a standard.

Parents think children are well taught if they receive high marks. If the children fail of promotion, parents are just as certain that the teacher is inferior. Similarly, principals and superintendents sometimes rate teachers in this way. When viewed in the light of the foregoing discussion of marking, it will be seen that this standard is of little value.

Supervisors often use the class-room technique observed in visits as a basis for judging the work of teachers. This standard depends for its reliability upon the training and supervisory experience of the one using it. Too often supervisors are poorly trained, and technique to them means little more than good questions, use of showy devices, and pleasing class-room appearances. Personalities and hobbies have full sway. There is no guaranty that what superintendent A considers essential to good teaching will be what B or C rate high. It may be that all are extremists of different types and that each emphasizes different factors.

The reactive attitude of the child is used also as a basis for judging teaching efficiency. From this point of view the pupils should show (1) a guiding motive, (2) a consideration and weighing of values, (3) attention to organization of subject-matter, and (4) initiative in their work. What constitutes each of these points in the concrete is left to the judges to decide. They will agree no better upon these points than judges will agree on the forms of class-room technique neces-

sary to secure these outcomes. This shift in attention from the form of teaching to the outcomes is a good one, but agreement on the details is needed to make comparisons possible.

The Johnston Ten-Point Scale¹ for estimating the class-room work in high schools tries to unite the two preceding bases. It helps to analyze the class-room work, and is thus an aid to the improvement of teaching more than a means for judging its quality. Its main weakness is that it is subjective and depends upon the opinions of judges for its estimates. Judges with hobbies or inadequate training can not estimate the success of teachers any better with this point scale than with any other subjective aid. The ten points are as follows:

a. Setting of class topics in the course. This is shown by the mutual understanding of teacher and pupils of the relation of the day's topics to preceding topics. It emphasizes the necessity for correlation between lessons and subjects. It implies that more is needed than the mere assimilation of a single text-book's material day after day to secure the best form of a lesson.

b. Mastery of intellectual content and effective logical organization of material. This point implies that the related facts of a lesson must be put into their proper mental associations. Things must be put in their logical order so that the essentials stand out as essentials.

c. The mechanics of class-room management. Economy of time and grasp of pedagogical technique. This includes all of those things that have been presented under the objective conditions of teaching and all points that are considered

¹ Prepared by the late Professor Charles Hughes Johnston of the University of Illinois, but never published in detail.

as the mechanics of teaching, questioning, and the use of devices.

d. Effective emphasis upon the mental processes and values peculiar and essential to the subject. This point is hard to make concrete. Teachers talk about values peculiar to a subject, but seldom can detect them in the actual class-room results. Such things as cause and effect in history, inference in science laboratory work, and proof in geometry are of this nature. Those that are found only in a particular subject must be brought out when that subject is taught, if the work is to be rated high on this point.

e. Independence of teacher and class as a group toward their material. In common phraseology this independence means the excellence of the preparation of teacher and pupils. Every one must be free from text-book or syllabus to such an extent that the real thought of the recitation moves forward without the distraction or interruption that comes when materials are new or unfamiliar. Supplementary contributions must be made freely and accepted hospitably by teacher and class.

f. Suitability to the pupil of the type of recitation employed. This point recognizes the fact that the form of the recitation and its details, must be modified to suit the maturity of the pupils, the nature of the subject, the stage of development reached in a particular course, and other limiting factors.

g. The "common-sense" factor. This point directs attention to the fact that a teacher must develop a class atmosphere of sane thinking. This will be manifested in sane and clear thinking attitudes in the class-room. Conclusions will be drawn in recognition of the limiting factors. The practical will be continually emphasized and, above everything else, the teacher's judgment will be accepted by the pupils as the best of sound thinking. These phenomena are secured through the growth incidental to many days of teaching, and are not found during the first few days of a teacher's work.

h. Evidences of culture versus mere erudition. This is shown in the way the class-work strives to bring out those things that are the marks of culture and refinement. These

will be manifested in good language, good voice, and general "cultural atmosphere."

i. *Class participation and class responsibility.* This is measured by the extent to which the class is a real active socialized unit. It will be found in the greatest perfection in those classes where pupil coöperation has been developed most.

j. *Class respect for learning.* This last point is shown in a seriousness of pupil effort, which gives a tone of scholarship to the class. The pupils will be wholesomely interested, serious, and good-naturedly humorous. This and the two preceding points are school products, products of the combined efforts of all of the teachers, and one teacher can not be held responsible for them.

SUMMARY

The results of teaching are intangible and difficult to measure. Teachers should know how to measure the results of their work in order to adapt their methods to the varying needs of the situation.

The daily recitation enables the teacher to get a fair idea of results, but it needs supplementing by examinations. Examinations are valuable as teaching devices as well as for measuring the results secured, for they help to organize knowledge. They may be oral or written, announced or unannounced, time limit or work limit. The questions employed should test other forms of pupil ability as well as the ability to remember.

Marks are not highly reliable as measures of school-work as ordinarily computed. The unreliability is due to the inability of teachers to discriminate small degrees of difference in merit, to the emphasis upon different phases of the work by different teachers, and

to the different standards of perfection held among teachers. The best marking system, theoretically, is a letter system. These letters should be distributed approximately according to the normal frequency curve in large classes. The fundamental point in marking is that all teachers in a school should mark on the same basis. Variations of the individual teacher from the general tendency of the distribution of marks need explanation, for they may indicate the presence of undesirable features in the teacher's work. The teacher's marking will be more accurate if the right attitude is maintained, if the average paper in the examination is taken as the standard, and if fine discriminations are avoided.

Suggested Readings

- HARVEY, N. A. *Principles of Teaching*. Pp. 266-269.
A very good brief discussion of examinations.
- NATIONAL SOCIETY FOR THE STUDY OF EDUCATION.
Fifteenth Yearbook. This presents standards and tests from the supervisor's point of view.
- PARKER, S. C. *Methods of Teaching in High Schools*.
Chapter XXII. A clear discussion of the problem of measuring the results of teaching.
- STARCK, DANIEL. *Educational Measurements*. Chapters II and III. A good technical discussion of marks as measures of school-work. The remainder of the book is devoted to objective scales and standards.

STRAYER, G. D. *The Teaching Process*. Chapter IX. An excellent presentation of the organizing function of the examination.

Exercises

1. What should be the form of questions asked in the daily recitation if they are to measure the results of teaching?
2. Examine sets of examination questions and classify them into three groups: memory questions, thought questions, and questions or tasks of application. Which predominate? Is there any difference between subjects shown in the forms of questions used?
3. When is a teacher justified in giving an examination without telling the pupils that it is to come at that time?
4. Prepare mimeographed copies of a pupil's examination paper and ask a group of teachers to mark the paper independently. Compare the marks they assign with those originally assigned by the person who gave the examination.
5. Distribute the marks assigned by the different teachers of a school and ascertain whether there are any personal equations shown by the teachers.
6. Mark a set of examination papers for another teacher, using the average paper as the standard.

7. How is "sampling" of any value in determining the marks of pupils' note-books and other routine work?
8. Visit class-rooms and note how many of the points of the Johnston Ten-point Scale you can recognize. Are there any differences between subjects that you have discovered?
9. What explanation can be offered if half of a class fails in an examination set by the teacher? What would you say if the superintendent prepared the examination questions?
10. Should a pupil's chances of promotion depend solely on the marks made in the examination?
11. What are the criticisms that can be made of a teaching schedule that requires a written examination every fourth Friday throughout the year?

CHAPTER XV

TESTS AND STANDARDS¹

THE subjective methods of evaluating teaching results discussed in the foregoing chapter may be made very useful if properly handled. The fundamental requirement is that those who apply them be trained in their use. When the various points have been standardized finally by educators, score-cards for evaluating teaching effort may be devised that will be as effective as the score-cards in use in the field of agriculture. Until this has been done, objective tests will receive the bulk of the attention of the educational world when a definite measure of results is desired.

I. OBJECTIVE TESTS.

A. *Tests as Objective Measuring Instruments.*

It was a great advance in the field of physical measurement when the first standard yardstick was established. Before that time there was no doubt a great amount of disagreement over ordinary measure-

¹This chapter will not be very intelligible if the person doing the reading is unfamiliar with tests. As an aid to its understanding it is suggested that a set of sample tests be secured by the reader. A sample package containing the tests to illustrate the points made in the chapter has been arranged by the writer, and may be obtained from The Century Company postpaid for 60 cents.

ments of length, height, and area. As a consequence of these disagreements, measurements could be of little value in commerce and industry. The invention of the yardstick revolutionized things. Standards were set up that were accepted without question, thereby making possible the efficient exchange of commodities that were linear in nature. When finely graduated instruments, capable of measuring things accurately to thousandths of an inch, were invented, a much greater advance was made, stimulating industry in countless ways. One does not have to use his imagination very much to see the manifold possibilities that resulted from accurate mensuration of the physical. Though the construction of the first standard yardstick was a great achievement, the devising of the micrometer was also of vital importance.

In the educational field the construction of objectively standardized tests was a similar great advance. It is no longer necessary to express our opinions about the general merits of the work of one school system in comparison with another. Instead, the facts in the case, as revealed by tests in the more formal phases of education, make it possible to prepare statements based on facts. To be sure, we have not yet reached the micrometer stage in educational measurements, but even standardized yardsticks are a great boon. The standardized yardsticks of education have been prepared now, and their universal use will prepare the way for finer measuring instruments.

The importance of tests and standards has become so widely recognized that the measurement of the results of education in various cities has occupied the time of people especially selected for this work. Boards of education have employed directors of tests and measurements, who find the evaluation of the results of a series of tests very helpful in the supervision of the schools. The administration of standard tests is a time-consuming piece of work even when one understands his job. When the goal to be attained is not clearly foreseen, it is often a much more difficult task than is realized. However, tests are being simplified, and their administration is becoming so much more thoroughly understood that a larger and larger number of people are using them successfully each year.

B. *What a Test Is.*

A standard test is very similar to an old-fashioned examination in many ways, especially in its purpose. It differs from the examination mainly on the administrative side. A good test is devised in such a manner that the reactions of the pupils are so controlled or restricted that the results may be evaluated quickly. In other words, tests usually are easily "scored," while examination papers are "graded" or "marked" only after a laborious reading. The pupil usually answers the questions of a test by making marks or writing figures or words. In the examination, on the other hand, the pupil writes lengthy answers. The test thus

will cover a large number of points, but of course this fact can not be true of the examination. Oftentimes a test seems to be made up of minor details; but it has been discovered that these minor points may be so selected that they are as significant as the apparently greater problems of the examination.

C. How a Test Is Made.

The usual procedure, when a test is to be devised, is to select a large number of items from the particular field in question that may be used in the test. These items are then arranged in the form in which they are to be used, and a preliminary try-out of the test is made. This preliminary try-out may be made with a few students or with a comparatively large number. Usually a very limited try-out is resorted to before the real preliminary try-out is staged, so that the most glaring deficiencies may be remedied at once. After the preliminary administration of the test has been completed, the scores made on each item are examined carefully, and such crudities as are apparent are eliminated.

When this stage has been reached, the usual procedure is to arrange the items of the test in the order of their difficulty, placing the easy items at the beginning. The method that is to be used depends somewhat upon whether the test is to be used as a speed test or as a work-limit test. The grading need not be so carefully done if the work-limit form is to be used,

but it is very essential to have the items scaled if speed is important.

After the tests have been put in final form it often is important to find out what the test really measures. This point is especially true if the content of the test is not obviously related to some course. If a test composed of supposedly reading items has been devised, one may wonder whether the test really measures reading ability. This question can be settled by determining the validity of the test. In other words, its correlation with a real reading criterion must be found. If there are two tests purporting to measure the same thing, that one is the more valid which has the higher correlation with the criterion.

Before tests can be used by people in general, the scores made by a large number of pupils must be compiled. The average score made by all of the pupils in a grade is found, and the series of averages for the different grades constitutes the standard scores for the test. This procedure is called standardizing a test, and is necessary before a test can be of real service to the rank and file of the educational profession.

D. *When to Use Tests.*

Teachers and supervisors often feel that they ought to use standard tests of some sort in their work, but they are at a loss as to just when and how to do it. When to use a test depends to a great extent upon the purpose for which the test is to be applied. If the

scores made by the pupils in the test are to be used to reveal progress, the technique will be different from that to be followed if the scores are to be used to show group or individual weaknesses.

If the purpose in giving the test is to measure progress, it will be necessary to give two tests. One must be taken by the pupils at the beginning of the term of teaching. This information is very essential, because without it a test at the end is a comparatively unknown quantity. One group of pupils may be burdened with a poor earlier preparation, but may progress very well. Another group might come with unusually good preparation, and make almost no progress. The two groups would thus end at about the same place, although the teacher in charge of the first group should be credited with good teaching and the other one with poor work.

If, on the other hand, the purpose in giving the test is to discover individual or group weaknesses, the test may be given at any time—preferably, of course, early enough in the term of instruction to permit the removal of such deficiencies as may be revealed. Many tests are suitable for the detection of group weaknesses, but those that can be used to aid the individual are much fewer in number. This situation is due to the fact that many tests are reliable for groups but are somewhat unreliable for the individual. By this is meant that groups do not make significantly different

scores on similar tests when given at the same time, while individuals often do.

E. *Selecting the Test.*

The purpose for which the test is to be used should be the final guide in selecting it. The test that is used to show group improvement may be much shorter than the one used for diagnostic purposes, because a much higher individual reliability is needed for diagnostic tests. A test, when prepared for schools in general, may easily contain items that are not universally taught. In that case a pupil might miss some of them, because he had not studied them as thoroughly as pupils in general do. Errors due to carelessness and guesses also are factors that are important in individual scores but that are not significant with groups, because they are constant factors, which neutralize one another when a number of pupils are involved. Other things being equal, however, the test that is the more reliable should always be chosen, because the improvement of the individual should always be the ultimate goal of testing.

A subsidiary consideration, which must be kept in mind when choosing a test, is its ease of administration. Complicated directions for the examiner are no longer considered necessary for some of the best tests. There was a time when it was thought that only a trained psychologist should be permitted to give tests, but that

time is past. Tests may be administered by any one who will be impartial and who will follow instructions implicitly. Any test that can not be administered in this manner is not available for general school use. There is no virtue in complicated instructions, and they will soon be a thing of the past.

As might be inferred from the preceding paragraph, a test must be provided with complete instructions for its administration. Its scoring also is important, and helps for the efficient carrying out of this work also are necessary. Last, but not least, a test must have standards that can be used as the inches on the yardstick.

II. STANDARDS.

The present-day standards for many of our tests are somewhat unreliable because they have been compiled from data that were limited in scope. The scores used have been obtained frequently from the city schools of a few cities—as a rule, Northern cities. No recognition is made of the fact that these areas are centers of selected population. Adequate standards will differentiate between sections of the country. Our country schools can not maintain the standards that well graded city schools reach with ease; neither can the Southern schools, which are handicapped in many cases by short terms and poorly trained teachers. Centers containing a predominantly foreign population do not do the work that thoroughbred American sections do

without difficulty. Each of these factors should be recognized and standards for each should be provided.

The time of the school year that the test is given also should be taken into consideration when the test scores are compared with the standards. Immediately after the summer vacation the pupils will do poorly because they have forgotten much since they last were in school. To compare their scores with those made by pupils who took the tests later in the year is to disregard this very important factor. Some of the standards now published give scores for November and April, the mid-semester points. This plan goes a long way toward supplying the needed aids, but it neglects the September, January, and June points, which it seems might be profitably given. Standards, to be of the greatest service, must provide for all of these minor details.

The actual improvement that a group of pupils makes is the important thing, rather than the point at which it is found when tested for the first time. Unless the standards are so used that they reveal deficiencies and lead to improvement, they are of little value. Standards may be of much value in the case of children who have reached the level of development corresponding to their general mental maturity. Oftentimes it is not worth while to strive for additional improvement above the standards, because it is secured at an enormous expenditure of energy due to the immaturity of the pupils. When pupils reach the proper

maturity, subjects frequently are learned easily that are mastered with great difficulty if taught earlier. Standards thus show how much can be expected of the pupils, saving the useless expenditure of effort that would result if higher goals were set.

III. CAUSES OF LOW SCORES.

There are many factors that may be responsible for a poor showing on the part of the pupils. Poor home environments do not give the children a fair chance, for they lose the stimulus that other children receive from this source. Pupils in ill health can not compete with normal children. This point is so obvious, however, that it need not be emphasized. When the pupils are below par mentally, the same results can not be expected that would be the case otherwise. Another cause of low scores may be a poor administration of the tests, when the pupils do not do themselves justice. The time may be shortened accidentally or the proper instructions may not be given, each of which factors will result in low scores.

Poor teaching also may be a cause of low scores. However, one should be very sure of his ground before the fault is laid to the person in charge of the pupils. A teacher must have pupils up to the average in ability, the usual regularity of attendance, and comparable equipment before she can be blamed for inefficient work on the basis of test scores. Even in cases where a teacher does not secure the expected results, she may

be the victim of circumstances. Only teachers who are especially qualified temperamentally or intellectually should teach the abnormal. One of these teachers may be put in charge of a group of average children and do mediocre work, while if she is put over a group to which she is fitted she may do excellent work.

IV. MENTAL TESTS AS CHECKS.

If a supervisor has accurate data concerning the mental caliber of the different pupils of his school system, he can arrange for many adjustments that will make for efficiency. Teachers can be put in charge of groups for which they are fitted, and pupils can be promoted or demoted as best suits them. Mental tests are only checks for this work, and should be considered only as one of the factors in the case. The pupil who is mature mentally and does good school-work can be promoted with safety; but the pupil who is superior in school-work and only average in general ability should be promoted only after the utmost deliberation. The dullard in mind usually turns out to be the dunce in the school also. He should be put with fellows of his ilk, where special instruction suited to the mental immaturity may be given.

With exact information concerning the mental maturity of the pupils being taught, a supervisor will have some idea of the kind of work to be expected from a teacher. Two teachers having rooms of the same

mental composition should produce approximately the same teaching results. When this is not secured, differences in the skill of those doing the instructing may be suspected.

The time has now arrived when there is little necessity for mental testing to be restricted to individual work. Individual tests may be used as a last resort, when much may depend upon the decision to be reached; but for ordinary work group tests are available. Two or more group tests, when well administered, give data that are accurate enough for most situations.

V. TESTS AS SURVEY TOOLS.

Tests first came into use in a general way as survey tools. Educational experts entered some of our large city school systems and gave tests in many of the fundamentals. The results secured often were very helpful in suggesting improvements in administration, in teaching emphasis, and in other details. As a whole, the work has been so beneficial that many school systems have acquired the habit, and self-surveys are frequently made. A survey made by those within is carried on sympathetically and usually can be counted on for good results, while a survey made by outsiders sometimes leads to friction and little progress. Simple tests can be used for this work, because the individual reliability need not be so high as for other lines of work.

VI. TESTS AS INSTRUCTIONAL AIDS.

The most valuable service that tests can perform is to aid instruction. When groups of students are compared, the scores made reveal any general deficiencies that may exist. Teaching emphasis varies between one teacher and another and between one school system and the next. When this emphasis has been pronounced it often happens that some of the more fundamental details have been neglected. Group tests may reveal these and thus make it possible to shift the emphasis to the neglected items.

The teacher herself may use the tests to discover individual weaknesses. Some tests have been designed especially to serve this end. In the field of arithmetic, for example, pupils may be weak in division and up to standard in fractions or more advanced phases. Again, they may be deficient in one of the tables although well prepared in the others. When such weaknesses are revealed by a test, the teacher can take the necessary steps to correct them.

Tests also can be used to discover pupils who have unusual aptitude. In the past teachers have not given the superior pupils much thought; but the use of tests has directed attention to these individuals so strongly that their problems are being considered. Those who have the best minds are the ones who have the greatest possibilities ahead of them. Effort expended on them pays many times the social dividends that the time

spent on the dullard produces. We give much time to the subnormal but neglect the superior in most schools—a condition that will be reversed when individual results are considered in their proper perspective.

VII. TESTS IN EDUCATIONAL GUIDANCE.

Another field in which tests are being put to use is in educational guidance. There was a time when all boys and girls took the same courses when they went to high school. A large number of our youth found the demands of the traditional regimen too exacting and, as a consequence, left high school. The recognition of this fact was followed by a broadening of the work of the high school, and science, agriculture, manual arts, and home economics were brought into the school, with the idea that cultivation of these interests would prove to be the solution of the difficulty. Our boys and girls did not have the foresight to select wisely from these offerings, however, and often chose work for which they were unfitted. This is the point where tests are being of great service. There are many tests that show general aptitude, and the results of these are used in some schools to guide the pupils in the junior and senior high schools in the selection of the courses for which they are best qualified by native capacity, temperament, and training.

SUMMARY

Subjective methods of evaluating teaching results limited in their scope because teachers are un-

trained in their use. Objective methods are much more serviceable because little training is needed by those who apply them. Tests and their accompanying standards make it possible to compare schools and cities and methods by the use of facts.

Tests are carefully prepared examinations that have been compiled from material that has stood the test of the school-room trials. They should be used at the beginning and at the end of the school term, if progress is to be measured. If individual weaknesses are to be revealed, the tests may be given at any time.

The test should be selected mainly on the basis of the purpose for which it is to be used. Its ease of administration should be a big factor in the decision.

Present-day standards are somewhat unreliable because they are so general. They should be supplemented by additional standards for different groups and for various seasons of the school year. Low scores may be due to poor home environments, ill health, irregular school attendance, poor teaching, low mentality, or a faulty administration of the tests.

Mental tests may be used to check the results of standard tests. The mental caliber of the students a teacher has is an important factor in determining the work that will be done. Much of the mental testing can be done with group tests.

Tests may be used as survey tools, as instructional aids, and as a basis for educational guidance.

Suggested Readings

- HOLLEY, C. E. *Mental Tests for School Use*. A work that gives some practical hints on the use of mental tests.
- MONROE, W. S.; DE VOSS, J. C.; and KELLY, F. J. *Educational Tests and Measurements*. A good book on tests and measurements in the common branches.
- MONROE, W. S. *Measuring the Results of Teaching*. A very helpful book, especially for those who wish to measure the fundamental subjects of the common school.
- TERMAN, L. M. *The Intelligence of School Children*. A good book for those who are interested in the use of mental tests in school grading.
- TERMAN, L. M. *The Measurement of Intelligence*. The manual for the Stanford Revision of the Binet Scale.

Exercises

1. Make a list of the subjects for which you find tests suitable for survey purposes.
2. Make a list of the tests that seem to you to be of value as diagnostic instruments.
3. How much time could a teacher devote with profit to the use of tests?
4. To what extent may standard tests be substituted for the regular school examinations?
5. What test would you use to reveal individual weaknesses in arithmetic fundamentals?

6. What group of tests would you consider necessary as an aid in educational guidance?
7. How much weight would you give to test scores in comparison with school marks in educational guidance?
8. How may tests be used to place pupils properly when they change schools?

CHAPTER XVI

GENERAL TECHNIQUE

I. SUGGESTIONS FOR THE FIRST DAY.

INEXPERIENCED teachers often are uncertain as to what they should do when they begin their work in the class-room. Many are unfamiliar with the school-room situation, knowing it only from the point of view of the student and pupil. This would not be the case if every beginning teacher had been prepared by a thorough course of training that anticipated the difficulties usually encountered: but, unfortunately, a large per cent. of our teaching personnel is untrained. Some of these difficulties disappear if a correct start is made. Teaching, like most unfamiliar things, presents many foreboding features to the uninitiated. Consequently, a few suggestions for the first day may be of value.

A. *Advanced Preparation.*

It is advisable for new teachers to make some preparations for their work before the first day arrives. They should attend to their physical wants very early after they arrive on the scene. Good boarding- and rooming-places are essential to physical comfort. In seeking for these, teachers must be careful not to

offend people by trying to find something for nothing. Good accommodations must be paid for, and communities provide them for their teachers at as reasonable rates as are offered any other class of persons. It is a good plan for new teachers to make inquiries from disinterested parties, and thus ascertain the usual rates and desirable places in the community before starting out to engage accommodations.

In addition to assuring herself physical comfort, a teacher should learn a few things about the school. The recent history and the aims and hopes of those in charge give a perspective that may be used to guide a teacher's work. If there is a wide-awake principal or superintendent in charge, he will call a teacher's meeting at which the general plans of the year will be outlined. It is the teacher's duty to attend this meeting, even if it interferes with some previously planned recreation and is not specified in the teacher's contract. Attendance at this meeting may help the teacher to make a good start, while failure to attend may give the supervisor a bad impression that may be a factor in deciding a future reappointment. Lack of attendance at and of coöperation in teachers' meetings is usually a symptom of insubordination and other undesirable characteristics.

Another phase of preparation that is of value to the teacher is a visit to the school plant. Here she can learn many things that will prepare her for the teaching work. She should know the plan of the buildings,

including the location of play-rooms, toilet-rooms, store-rooms, and fire-escapes, as well as the usual facilities. As far as possible, an inventory, mental at least, should be made of all equipment, supplies, and helps that are present. Lack of attention to this last handicaps the work and sometimes leads to wasted funds through duplication of supplies and equipment.

In addition, it is necessary that a teacher make tentative plans for the year's work. All courses should be outlined tentatively; or, if already outlined in courses of study, the outlines should be examined carefully so that the teacher may be able to plan the work. It may be said that the work should be planned in its general features for the year, a little more specifically for the next month, in detail for the following week, and with the minutest care for the next day.

B. *Definite Plans for the First Day.*

1. The plans for the first day should include provisions that will acquaint the teacher with the pupils. One of the first essentials that enable a teacher to maintain order is the ability to call the pupils by name. If the teacher can secure a list of names of her pupils beforehand and can memorize it, she will be able to connect the faces of her pupils with the names in a very short time. When the names of the pupils can not be obtained until they come to school, the teacher should secure them as soon as she begins her work. Slips of paper passed around, upon which the pupils

may write their names, can be collected and read to the class. This will enable the teacher to become familiar with the pronunciation of the names and learn to whom they belong. At this time the pupils should be assigned seats. In assigning seats it is best to arrange classes as compactly as possible. It will aid a teacher to connect names and faces with one another if a seating plot is made that can be consulted whenever she is in doubt about the right name. A seating plot also helps to check the attendance quickly.

2. When the teacher has completed the plans for getting acquainted with her pupils, she should outline the procedure for informing them about the work to be done. When the school does not provide books and supplies, the pupils must be given proper directions about their purchase. They must be given an idea of the general requirements of the work, and should be told about the larger features of the courses. In doing this it is well for the teacher to emphasize the pleasant features rather than the unpleasant ones. The main aim of this is to provide for the larger phases and to put the pupils into the right attitude toward the work.

3. It is the practice in many schools for the teachers not to attempt any formal instruction in the first school session. There are so many new things, and pupils have so little background, that it is questionable whether instruction pays at the start. If any attempt is made at formal instruction, it must be restricted to a review of things studied earlier or to training in study

methods. No formal expository teaching is worth while on the first day, though this is the form that often is used. It is better not to attempt any formal instruction in the first session, and to devote the time to preparing for the next day, than for teachers and pupils to tire themselves unduly by trying to run on regular schedule under difficulties. Pupils and teachers must make preparation for the year's work just as they must make preparation for each day's lesson.

II. TEACHING POSTURES.

It may be profitable to discuss the question of teaching postures briefly. The best position for the instructor to take in teaching a class is a standing one a few feet in front of the first row of seats. This posture enables the teacher to hold the attention of the class easily. Postures become habits, however, and teachers must not become habituated to those that are too exhaustive of energy. Teachers will find it best to take a sitting position as soon as they can hold the attention of the class in this way. The sitting posture puts a greater premium upon the intellectual and emotional forces than upon commanding physique; hence it requires more mental alertness. It is necessary, however, that teachers prepare for possible periods of ill health when it would be very detrimental for them to stand continuously. Some teachers find it difficult to become enthusiastic over their work while seated.

These may find it necessary to stand in order to develop sufficient enthusiasm.

III. RELATIONSHIPS OF THE TEACHER.

The relationships of the teacher are not considered ordinarily as a part of the technique of teaching, but they play so important a part in the results of teaching that are secured that they may be regarded as vital to the technique. The proper attitude adopted by the teacher makes it possible to do first-class work because the coöperation of others is obtained. Without this coöperation the work is very difficult and discouraging.

Teachers must adopt the proper attitude toward supervisors. They must be loyal and must maintain the position of subordinates. It sometimes happens that the supervisor is not qualified for the position he holds. In that case the teacher must adopt the attitude maintained in the army, which does not recognize personalities but salutes and obeys the uniform. The teacher must maintain the right attitude toward the office that the supervisor holds, even if the supervisor is utterly unfitted to fill it. Teachers sometimes refuse to carry out orders of their supervisors that they do not approve of. In doing this they are insubordinate. It often happens that the teacher is viewing things from a wrong perspective, "making a mountain out of a mole-hill," and that things are not so bad as they seem. In any case, the teacher should do what is

asked by the supervisor as long as it is in his sphere of authority. If he requests the wrong things he will be responsible for the results, and the school patrons will attend to his case later. The best teaching requires team-work, and the most arbitrary restrictions allow many opportunities for initiative on the part of subordinates.

Teachers must maintain the right attitudes toward their co-workers. These must be the attitudes of sympathy, sincerity, and coöperation. As a class, teachers are of a more nervous temperament than average human beings, and are unusually sensitive. This makes it necessary for all to coöperate to prevent misunderstandings. If all do their best to prevent the wrong points of view from intruding, the work will be much more pleasant. It often happens that teachers are limited in their intercourse mainly to their fellow workers or to their pupils. It is hard to find congenial company among the rank and file of many small communities. This puts restrictions upon teachers, as a class, that seem hard to bear at times. The wisest plan is to put up with these disagreeable features and to remember that every profession has its drawbacks.

Toward the pupils the teachers should maintain the attitudes most favorable to discipline. Outside of school hours it often happens that teachers seek the company of some of the pupils. This practice is fraught with dangerous possibilities. This is true
lly when the teacher seeks the companionship

of those of the opposite sex systematically. This must be done with the utmost discretion. On the other hand, the practice, which has become quite common, for teachers to become the leaders of pupil groups in out-of-school activities, such as Boy Scouts' patrols and girls' camp-fires, is a very good one, because it gives chances both for recreation and for character-molding.

Toward the community the teacher must adopt the attitude of service. Teaching is primarily a calling of service. Many things must be done that are not heralded from the housetops and for which the only reward is the satisfaction resulting from knowing that one has done a good deed. In small communities the demands of this sort that are made upon the teacher are many. In some cases it may be necessary for teachers to conserve their energies and to refuse to help at times. The teaching duties should receive first attention, and no amount of social service will compensate for the systematic neglect of the school-room.

IV. USE OF LESSON TYPES.

As has been pointed out in connection with the discussion of the formal class period, much of the teacher's work is routine in nature. At times, however, it ought to rise above this and partake of the characteristics of an art. These are the occasions for the use of lesson types. Until a teacher has mastered the technique presented in Chapter V, however, and is sure of the simpler phases, there is little excuse for attempting

such difficult work as the expository, inductive, or appreciation lessons. These forms require a mastery of many simple activities, and fall flat unless well done.

When a teacher has learned to use the simple items of technique, she is ready for more pretentious efforts. These should not be attempted wholesale, but one at a time. In reality, a method of teaching must be assimilated so thoroughly by the teacher that it functions mainly without thought, if it is to be most useful. To learn to use one of the special teaching forms, a teacher should take moments of comparative leisure when she wishes to improve her methods, and plan out the details of a few lessons that can be taught easily. Then, when the day arrives for this work, she will find herself prepared to try out the new method. Unless these forms of special technique are mastered very thoroughly, they can be of little value, because teachers must rely mainly on moments of inspiration to add the artistic touches to the class-room work.

American educational conditions do not permit teachers to make adequate preparation in the first year or two of their teaching work. As a result, many adopt makeshifts that bring passable work, and then little advance is made later. Instead of this, a beginning teacher ought to have a year of probation¹ in which not more than half-time work is required. This would give the novice a chance to make the right kind

¹The University of Washington, Seattle, Washington, has tried plan in some of the city schools of the State, and reports very favorably on it.

of start, and thus insure future growth. Lesson types are for the teacher-artist, and are of value only in so far as the rank and file has the time and ability to use them.

V. BOOKS.

Books are one of the valuable sources of subject-matter that may be used in the class-room. They may be used to furnish the organization and main materials of the course. They may be used as supplementary subject-matter, which will round out the teacher's outline or the regular text-book. Because of their accessibility, much teaching should aim to train pupils to use books intelligently and thus enable them to continue their education after they have left the school-room.

Under the conditions found at present in American schools, text-books are a necessity. Most teachers are poorly trained in the knowledge of subject-matter, and the text-book, with its careful organization adapted to the children, provides for the deficiency. With text-books to furnish the content and the organization, the work in our better American schools compares favorably with the work in good English, German and French schools, where the teachers do not use text-books. Until a teacher has mastered the subject-matter of a course so well that she can write her own text, she must rely upon the one prepared for her.

In selecting a text-book or other book that is to be

used very much, it is well if the teacher selects on the basis of the characteristics of a good book. The pupils labor so much over the text that hygienic requirements must be met if this work does not injure their eyes. Every book must be well organized and adapted to the children who are to use it, but it must be printed so that reading it does not produce unusual eye-strain. A good book should be on unglazed paper, because the reflection from glazed paper is hard on the eyes. It must be bound securely to stand the wear and tear of service. Most school-books are well bound, but many are printed poorly. The type used in such books ought not to be smaller than ten-point, and there ought not to be any notes or other helps printed in very small type that will fatigue unduly. Further, the lines of printed matter should have generous spaces between them—double leading, as it is called—because these make it much easier to read. Books that have the topical headings and important things in black-faced type and italics also are easier to study than those without these helps.

Teachers should use the text-book in such a way that it is an aid. In other words, they should allow the book to do a part of the teaching. Inexperienced teachers will find it best to rely on the text-book for the general order of topics. As they become more sure of themselves, it will be possible for them to break away from the text in those parts where it is deficient. The text should be the servant and not the master.

The teacher will find it helpful to prepare an outline of the text while studying for each day's lesson. This outline will be much more convenient than the book for reference in class. Further, organizing the outline compels the teacher to digest the lesson, and thus insures a better lesson preparation. The pupils should be taught to analyze their lessons in a similar way.

Books are very valuable as sources of supplementary information. When assignments for the use of supplementary materials are given to a class, unusual care must be exercised to prevent the waste of time. Pupils make mistakes when copying assignments from the blackboard and when writing from dictation. It is better to give the pupils mimeographed lists of the assignments, if possible, or to write them on the blackboard in the study-room, where they will not be erased but will be available for reference. In making general assignments to supplementary texts, it is necessary to provide enough copies so that there will be no difficulty because all want to use the same book at one time. This kind of work furnishes a very good opportunity for teaching pupils how to use books, especially how to "skim" familiar materials for important points.

VI. THE LABORATORY.

Laboratory work is one of the new phases of public-school education. It has been but a few years since well equipped laboratories were first introduced generally into the public schools. As a result, the methods

of the laboratory have been in a state of flux and have not been so successful as the ardent champions of laboratory work led people to expect them to be.

The laboratory may be very helpful if properly directed. It will add interest to the science subjects and make the school-work more real. To do this, it is necessary that the exercises be as closely related to life problems as possible. There must be no induction of difficult laws, no emphasis on exact measurement, and no mere recipe-following. These things are in order in college work, but should not confront the pupils when they are first introduced to a subject. The greatest difficulty in the past has been that college exercises have been condensed and given to the high-school pupils. Instead, exercises suited to the ages of the pupils should be used. The unusual success of courses that have dealt with practical problems gives assurance that this movement is of value. Adulterated food and stains on clothing have furnished practical problems in chemistry that proved much more educative than the work ordinarily given.

The more difficult things should be presented as expository demonstrations, by the teacher. These often are more valuable than many individual laboratory exercises performed by the pupils themselves on the same points. It is possible to present very good demonstrations with meager apparatus—"paper-and-ring" apparatus, as it is sometimes called. In fact, ample apparatus often is a blessing, because the

teacher is not tempted to display his own knowledge, and as a result keeps in the realm of the pupils' comprehension. Several simple exercises illustrating a principle are much better than one complicated one, and are easier to present.

VII. THE BLACKBOARD.

The introduction of blackboards into the school-room was one of the important events of educational history, for it made possible new lines of work that have been very helpful. Blackboard work has proved very useful in educational work with groups, for it has made possible the presentation simultaneously to a number of pupils of subjects that had to be presented individually before this device was provided. It also helped because it gave an opportunity for the supervision of the work of the pupils at the blackboard.

By furnishing a means for presenting writing and sketches where all the members of the class can see them, this device has made it possible for the teacher to disentangle intellectual relations and to represent them one at a time. Many children have difficulty in comprehending things presented orally, finding it much easier to understand when the sense of vision also can be used. Whenever a teacher discovers that pupils do not catch the meaning of what is being said, she will find it a great aid to use the blackboard. A teacher need not be an artist. Crude sketches often are very vivid because they analyze the idea or object

into its component parts. Outlines and summaries also are of much help. It is a very good plan for a teacher to put summaries of the work on the board at the close of every period of teaching that lends itself to them. It is especially valuable if the pupils aid in arranging the facts of the summary. Teachers find that the blackboard is very useful in reviving waning attention on the part of the pupils. A few marks or words placed upon it breaks up the monotony enough to renew interest. The chalk and blackboard should be used much more than they are. A common fault of beginning teachers is that they neglect this excellent teaching aid.

The blackboard also is used much for the presentation of pupil work. This use frequently is merely routine, as has been remarked earlier, and is deadening because it presents nothing new. It may be most valuable when the pupils are given new work. Its use thus becomes a kind of supervised study. In directing such work a teacher must be careful to provide for individual differences. Enough work must be given to keep the best pupils busy, and an opportunity must be provided for the slow ones to complete their tasks. In this work teachers must require each one to finish his problem before beginning another, unless he stops with the teacher's permission. If it becomes necessary to help individual pupils, a teacher must not "bury" herself at the board, and thus lose control of the others.

Whenever a pupil needs more than the help of a word or a suggestion, it is a good plan to ask a pupil who has completed his problem to aid the slow one. The supervision of such work is productive of eye-strain, and a teacher must take care not to bring on trouble in this way. Although a very effective teaching device, this plan demands the ability to make quick perceptions, and the teacher who can not do this may have trouble with it.

VIII. DEVICES.

Devices are concrete instances of detailed school-room procedure that apply the principles of method in unusually satisfactory ways. They are not principles of method. Many have been given in the discussions of topics in the foregoing chapters. A few more have been collected by the writer, and these will be presented here without much comment. Some of these can be adopted and used by teachers as they are given. Others will need slight modifications to fit them for particular situations. Most teachers have but few devices in their teaching repertory. These are used many, many times. It might be better if they had a greater reserve to draw from, so that those best suited might be used. One essential of a device, however, is that it needs repetition to make it most successful. Those presented here are given as found in the actual school-room setting.

A. *Devices for Securing and Maintaining Good Order.*

1. An amusing incident occurred that provoked an uproar of laughter and disturbed the class equilibrium in the reading class. It was impossible to secure the attention of the class for the pupil who was reading. After two or three pupils had tried to read and get the class attention, the teacher called for all to read in unison. This quickly restored the equilibrium and gave the teacher control of the situation.

2. During the course of the recitation the teacher was called from the room. The pupils immediately took charge of the recitation. One arose and asked a question, calling upon another to answer. When this one had finished, she asked a question and named a classmate who was expected to answer. This procedure was continued until the teacher returned.

3. During written work the teacher took a position in the rear of the room, where she could observe the pupils but where it was not easy for them to see her. This tended to keep every one at his work.

4. In a class-room where the blackboard was used frequently as a means for displaying sentences and problems in order to discuss them, cardboard numbers were placed above the blackboard to indicate the order of work. When sentences or problems were assigned, this eliminated the customary scramble for the choice places, for each knew just where he was to put his work.

B. *Devices for Economizing Time.*

5. A teacher in Latin prose composition was prepared with a set of cards for the day's work. Each of these cards contained one of the sentences of the day's lesson. When the recitation was called, the cards were distributed to the pupils, and each went to the blackboard to write from memory the sentence he had received. This saved the time teachers often waste in dictating sentences to pupils at the board.

6. The teacher stood at the door and collected written work as the pupils passed in dismissal.

7. The teacher in algebra relieved herself of the task of securing the daily record of work accomplished by having a pupil record the responses. When the class period began, the teacher handed the record-book to a pupil. This pupil called the class roll while the others continued the lesson. As the names were called the owners responded with the amount of work accomplished. Different pupils did the recording on succeeding days.

C. *Devices for Securing Clearness of Comprehension.*

8. In a botany class the main topics of discussion were placed on the blackboard by a pupil. The work for the period centered around these points.

9. In a Latin class sentences were diagramed at the blackboard. This showed grammatical constructions clearly and reviewed English grammar.

D. *Devices for Securing Social Coöperation.*

10. In a class studying Shakespeare certain pupils read the parts of the characters in the play. Critics were appointed from those who remained, and these noted carefully the expression, action, and pronunciation of those who took the parts.

11. The informal arrangement of classes in a circle or seated around a table led to an active participation in the recitation.

12. Pupils who were unable to work some of the arithmetic problems correctly were sent to the blackboard to try the work again. When one was sent, another pupil who had completed his work was requested to watch the one working at the blackboard and to help him when he needed it.

13. The review was conducted by the pupils. One would give a question and call upon another to answer. This one would answer and then give another question, etc. The pupil who asked the question was expected to judge as to the correctness of the answer. If no one else could answer the question, the one who gave it was expected to answer.

E. *Devices for Securing Competition and High Quality of Work.*

14. Contests or "matches" between two divisions of the class may be used in various ways. In one school the form of a relay race on the conjugation

of a Latin verb. The pupils in the first seats of two rows of seats were given pieces of chalk. These went to the board and wrote the first form, returned to their seats, and gave the chalk to the next ones, seated behind. These wrote the next form and then passed the chalk. The row that first completed the conjugation correctly won.

Another school had a mice-killing contest as a practical outgrowth of their nature-study class. Two sides were formed, and the pupils brought the tails to the school as evidence of dead mice. The result was an economic gain to the community through the extermination of the pests, as well as valuable educational outcomes.

15. Games similar to "authors" were used in which the related groups were formed from the parts of verb conjugations. These were most successful in drilling on Latin verb forms.

16. The work in English composition was motivated by the publication of the best work in the local city paper.

17. In a beginning German class the pupils were sent to the blackboard to write conjugations and declensions. As soon as a class member made a mistake he was asked to take his seat. Those who finished without errors were permitted to leave the class, and those who made mistakes were sent to the board again to learn the forms. When they had written the forms correctly, they were dismissed.

18. In geometry the lettering on the figures was changed. This prevented the memorizing of the proof.

F. General Devices.

19. In a room where the blackboard space was too limited to accommodate all of the class at one time, the pupils were assigned numbers. Odd numbers were sent to the board on one day and even numbers on the next. Those at the seats watched the work of those at the board to catch mistakes.

20. Each pupil in the class marked his own work before handing it in to the teacher. This led to the discovery of errors that had been overlooked.

SUMMARY

A few pertinent suggestions applicable to the first day's work are of value. The teacher should make provisions for board and room before the school-work begins. Knowledge of the school plant and of the recent history of the institution will help to secure proper orientation. Teachers should attend teachers' meetings, especially the first ones that are held. The year's work should be planned out tentatively. The first school-day's plans should include provisions for acquainting the teacher with the pupils, provisions for informing the pupils about the work they are to take and its nature, and plans for a few definite school activities that prepare for future work.

Teachers find the teaching position in the front of

the room the most effective. If the teacher stands, the work will be more intensive. Most teachers need to conserve their strength, and should learn to teach effectively when using the sitting posture.

The teacher should recognize certain relationships and their obligations. To the supervisor the attitude of respectful subordination should be the rule. To fellow teachers the attitude should be that of sympathy and coöperation. Toward the pupils those attitudes most favorable to discipline should be adopted. Toward the community the attitude should be that of service, with school duties coming first.

Lesson types are not for routine use. They should be reserved for unusual situations when the work is especially suited to them. The inexperienced teacher should not try to apply all of them at once, but should learn to use them one at a time.

Books are a valuable aid to teaching. Books should be selected that meet the accepted hygienic requirements. In using them, they should be the servant and not the master of the teacher. They are of much worth as sources of supplementary information.

The laboratory work is a comparatively new and unstandardized phase of education. It is of much value if well directed and if devoted to the performance of exercises suitable to the pupils. Difficult exercises should be presented as demonstrations by the teacher.

The blackboard is of much aid in presenting materials objectively. It should be used frequently and

will help to hold the attention of the pupils. It also is of value as a means for supervising the pupils' activities and for displaying their work.

Devices are of much aid. Those presented include (1) devices for securing and maintaining good order, (2) devices for economizing time, (3) devices for securing clearness of comprehension, (4) devices for securing social coöperation, (5) devices for securing competition and high quality of work, and (6) general devices.

Suggested Readings

- BURNETT, T. J. *Essentials of Teaching*. Pp. 193, 241.
The use of the blackboard.
- CHARTERS, W. W. *Methods of Teaching*. Pp. 370.
The use of the blackboard.
- EARHART, LIDA B. *Types of Teaching*. Pp. 28, 29.
The use of books. Chapter VII. The study of objects.
- PARKER, S. C. *Methods of Teaching in High Schools*. Pp. 31-33. Suggestions for the first day. Chapter XVII. Books as media of instruction. Chapter XIX. The laboratory.
- STRAYER, G. D. *The Teaching Process*. Chapter XVII. The teacher in relation to supervision.

CHAPTER XVII
LESSON PLANS
A NECESSITY

ONE of the essentials of good teaching is careful lesson preparation. The important points on this topic have been presented in the discussion of the teacher's preparation. It will be worth while, however, to go into the subject a little more minutely in connection with the present topic, especially as it relates to the teaching forms that have been given. Although some kind of planning is a necessity for every teacher, the kind that can be done is limited by many factors.

LACK OF TIME FOR COMPLEX PLANS

Few teachers have time for even the simplest detailed lesson plan. By the time they have taught thirty or forty pupils for five or more periods each day, they have little energy left for anything but the most elementary lesson preparation and the routine duties that must be met. Most teachers have little use for formal lesson plans. To require them to write out plans for all of their work is to overburden them with tasks, because such plans become very routine and lifeless.

On the other hand, they must make preparation for their work, and the spirit of growth is more to be desired than mere plan-making. If they can be stimulated to make the best preparation of which they are capable and are allowed to do it in their own way, the work will be improved. Some teachers may choose to jot down their suggestions in notes. Others may do the work mentally and depend on their memories for such suggestions as they may devise. Each should use the method that suits her best, though the method adopted should be the result of experimentation and not the line of least resistance. For most teachers, some form of written record will be the best, because they forget the details of procedure easily.

MAKING PRACTICAL PREPARATION

I. KNOWLEDGE OF SUBJECT-MATTER.

The first essential of a teacher's preparation is an adequate knowledge of the subject-matter of the lesson. In the lower grades of the public school the teacher has little difficulty in mastering the subject-matter, and method is very important. In the later years, on the contrary, method becomes more and more subordinated to a knowledge of the facts to be taught. This means, then, that the high-school teacher must spend much time in mastering lesson content. If every teacher were thoroughly trained in method, and had studied widely in college along the lines she teaches, there would be more time for the artistic side, the side

of method. Under present conditions, however, in which the average teacher has had little training and often teaches subjects that she has studied for only a short time, it is necessary for her to adopt many make-shifts. She must spend most of her time on the first essential—must struggle with the task of securing enough information to keep the work going.

II. METHOD.

The second essential in a teacher's preparation is method. When the minimum requirement in the way of lesson content has been provided, it is well for the teacher to think about the order of presentation. When this is not to be the order of the text-book, the teacher must give thought to what the pupils may be expected to know. This is the real starting-point in the teaching process—the point of contact, as it were. In this it is better for the teacher to over-estimate somewhat the knowledge that she expects her pupils to have than to under-estimate it. In doing this, however, a teacher should not continue to assume that pupils know facts that they do not know. The assumption should never go beyond the first question that she asks. As soon as it is apparent that the pupils do not know the point in question, it is necessary to go back to more elementary things that they do know. This implies, then, that the method used must be mainly one that allows the pupils to express their own ideas.

III. THE ORDER OF PRESENTATION.

After the teacher has decided approximately what the point of contact is to be, the next step is to decide upon the order of presentation of the lesson facts, in order to teach them in the way that is best suited to the stage of development of the pupils. This will determine the kind of devices that can be used, and the order of important questions. The questions should be formulated, if possible, during the teacher's preparation, though it often is sufficient to formulate the ideas in the form of statements that are essential. This may be accomplished by putting these in the outline of subject-matter that is carried to class. When a teacher has difficulty in changing these statements into good questions while before the class, it is best to write the questions while preparing the work.

IV. IMPROVING THE TEACHING TECHNIQUE.

When a teacher has a little leisure time to be devoted to the improvement of her technique, it often proves of value for her to plan a new teaching form that she has not been in the habit of using. The written form that she adopts should involve as little extra labor as possible. Some of the books on teaching technique present a formal arrangement of the lesson plan, in which the subject-matter is indicated in a column on the left-hand side and the procedure on the right. This form is often used by critic teachers in the supervision of practice teaching, but the student-teachers

often greatly dislike it. They prefer forms combining subject-matter and procedure much as it is combined in actual teaching. Those who are interested in the formal plan will find ample illustrations of it in the suggested readings given at the end of this chapter.

When the daily work is planned by a teacher who is not teaching many classes a day, a formal plan may prove advisable for the aid of the supervisor. It is thought best, however, not to try to present examples of such plans here. Instead, plans will be presented that embody the technique of the special lesson forms. These plans have been prepared by students in the writer's college classes, with the exception of the type-study lesson, which was prepared by the writer. Comments will be made on each plan, showing its strength and weakness.

MODEL PLANS

I. PLAN FOR AN ASSIGNMENT IN GENERAL HISTORY

Prepared by RALPH WOOD

Topic: Meyer's *General History*, Chapter LIII,
The Renaissance

"At the next meeting of the class we shall begin the discussion of the Renaissance. In the text we shall consider the subject-matter from article 669 on page 475 to article 678, page 480. If you will turn to those

pages, I shall give you several questions on the text that may be of help in getting this lesson.

"To understand the Renaissance is to have a basis for interpreting and understanding many of the events of modern history. The discovery of America, the books before you, your religious freedom, might be traced back to the Renaissance. Therefore get a good definition for the word Renaissance, which literally means 'new-birth.' Your author defines it in two ways. Note his distinctions.

"This great movement had its beginning in Italy. Show why it began in *Italy* and not elsewhere. In Italy this movement consisted of two phases. Be sure you understand what these phases were, and note the particular name applied to one phase.

"You will observe that in article 672 our author calls Dante 'The Forerunner of the Renaissance.' Bring to class some facts concerning Dante gathered from a source other than your text, and show how Dante was a forerunner of the Renaissance.

"Professor Meyer says: 'To understand Petrarch is to understand the Renaissance.' When you have read about Petrarch, explain Professor Meyer's statement. What was Boccaccio's contribution to the Renaissance? Why should Italian scholars have been so concerned in searching for old manuscripts? Who were patrons? What did they have to do with the Renaissance? What does the author mean by the expression, 'There was many a Mæcenas to encourage and further the

work'? Explain how the great libraries came into existence. Show how the fall of Constantinople aided the revival of learning in Italy. Consult the map facing page 512."

Comments.

This lesson assignment is most complete, giving the "what," "how," and "why" that are needed in the ideal assignment. The pupils are expected to do a high grade of work, and this assignment is too severe in thought demands for ninth-year pupils. With older ones who have been trained for such work it ought to prove very successful. The plan is very informal and few changes would be needed for actual use in the class-room.

II. PLAN FOR AN ASSIGNMENT IN THIRD-YEAR LATIN

Prepared by IRMA RUFFNER

Topic: Cicero, *Fourth Oration Against Catiline*,
Section 7

"Our lesson for to-morrow takes up the two proposals for the punishment of the conspirators that had been proposed in the senate before Cicero began the delivery of this fourth oration against Catiline. You remember that Silanus, the consul-elect, had first declared himself as in favor of the death penalty. All of the senators agreed, when called on, until it came to

Cæsar. He made a powerful speech in which he set forth the danger involved in putting Roman citizens to death without trial or appeal to the people. As a substitute he proposed life imprisonment in Italian cities and confiscation of their property. After this speech there was a great revulsion of opinion, and Cicero really feared that Cæsar's proposal might be adopted; for Cicero, as we know, favored the death penalty. At this stage Cicero entered the debate and delivered this oration. In the part we are to read to-morrow he reviews the two opinions—*sententiæ*.

"Note the different ways of expressing the one—the other. In the first sentence he uses *unam* and *alteram*; a little farther on he says *alter—alter*. The first *alter* refers to Silanus, the second to Cæsar, whose opinion is then discussed at some length.

"The sentence at the top of page 112 will not bother you if you are careful to get subject and main verb in mind first, *alter putat*; then be careful to get the right relations between dependent clauses.

"The conceptions of death that Cicero expresses in the next two sentences are rather lofty ones and compare favorably with certain Christian conceptions. In lines 13 and 14 we have two objections that Cicero has to offer to Cæsar's plan. Study them carefully. The distinguishing marks about this lesson are the many verb forms. Be sure that you get the construction of each verb in preparing to-morrow's lesson. The lesson row, then, will include only section 7."

Comments.

This assignment makes no conscious appeal to motive, but in the average Cicero class this would not be necessary. The various little suggestions that are made will excite interest, and this will motivate. The plan might have been better if it had drawn some of the ideas from the pupils by means of questions instead of presenting them all by the teacher. This is true especially of the point about Silanus. This plan is an informal one that exhibits the characteristics of one that could be used in the class-room.

**III. PLAN FOR A TYPE-STUDY LESSON IN
GEOGRAPHY**

Topic: *The River*

“Where does the river begin? Where does it end? Where does all of the water come from that we find at the mouth of the river? Where do the tributary streams get this water? Where do the springs get the water? When is the water mainly from melted ice and snow? When does it rain most? What differences are there in the amounts of water in the river at different seasons of the year? What is the high-water stage of the river? What is the low-water level? What danger does the high water furnish to the people living along the bottom-lands? What losses does it cause them to suffer at times?”

“What differences are there in the color of the water at different times? What causes it to be dark colored after a heavy rain or when the snow melts? Where do the particles of silt come from that give the water its muddy appearance? Where does this silt originate? Where does this silt go? What effect does the silt that is deposited on the bottom-lands have upon the crops that are raised on them? How does the depositing of the silt affect the channel of the river? What else may cause the river to change its channel?

“What value is the river to the people living along its banks? How do they get the fish? When do they cut the ice? Describe the way they cut ice. What do they haul in the boats that go up and down the river? What pleasure does the river furnish to the people? What are the dangers that lie in wait for skaters, for swimmers, and for boaters?”

Comments.

This plan has been prepared with the Missouri River in mind as a type. The thought movement is suggested entirely by the questions, which are so framed that they could be applied to most of our large rivers.

IV. PLAN FOR AN EXPOSITORY LESSON IN ENGLISH

Prepared by GOLDIE McCUE

Topic: Exposition, *What It Is and How to Write It*
APPROACH.—“You will remember that at one time

we learned that there were four kinds of prose discourse. Name them, John."

Answer: "Narration, description, exposition, and argumentation."

"Now we are going to take up one of these subjects—exposition. You have done some of this work before. In fact, every time you explained one of your cherished plans to your friends you have used this type of discourse known as exposition. In the future all of your reports that you will make in business, political, or religious life will probably be of this type. A great many of the papers the girls will write for their clubs will be expository. The boys who become machinists will use it in explaining to the inexperienced workmen. In fact, I can think of no position in life that will not require you to use your knowledge of exposition. Of course, every boy and girl here wants to know exactly what exposition is, and how you go about writing a good expository theme.

PRESENTATION.—"To put it quite simply, exposition is explanation. Whatever the subject chosen, if what you write is to be an expository theme, you must not tell a story, you must not describe, you must not argue, you must explain. If you are writing upon a law that you learned in the science class, you must expound it, make it clear to your readers; but you must not argue for or against the truth of this law. If you went to Niagara Falls, and wrote home to your friends about

its foaming waters and dashing spray, what form of discourse would that be?"

Answer: "Description."

"If you were studying that same falls in physical geography, and the teacher asked you to write a paragraph explaining why there was a falls there, what do you think that would be?"

Answer: "Exposition."

"Hawthorne wrote a book called 'The House of the Seven Gables.' What kind of discourse is it?"

Answer: "Narration."

"Yes; but if you should write a paragraph explaining exactly how the seven gables were constructed, what kind of discourse would you have then?"

Answer: "Exposition."

"We see, then, that exposition is to explain, to make clear. It can be applied to many subjects as varied as laws, definitions, the rules for an automobile driver, the workings of the automobile, etc. The one essential thing is that you clearly state the facts. Your reader or hearer must grasp from your explanation the actual facts, the actual working of the thing. Now, this usually will mean more than the definition of the thing; it will mean a full and orderly statement of the subject. To give you a working definition of it, I shall say: Exposition is that form of discourse which sets forth in clear detail the meaning or purpose of the subject under consideration. The next question is, how can you write good exposition? Frequently you

will find that you can make your theme much clearer as well as much more interesting if you will use examples, comparison, contrast, or even a slight amount of description or narration." (Here the writer of this plan would stop to show the use of these by several examples.)

"Then you will find that the three principles that you have met before will be absolutely necessary in exposition. You will remember our friends' unity, coherence, and emphasis. Well, you can make an exposition as clear as crystal if you will use these principles. In the first place, if you will stick to your subject and not ramble off in any direction, you will have unity. Secondly, you must take things up in a natural order, and be careful to show your reader the relation of each part, which means coherence. Finally, you must make clear what things you deem essential and what is a side issue.

"Now for a moment's review. Exposition is one of the most important forms of prose discourse. Its purpose is to explain, to make clear, to make the reader understand. This may be accomplished best by the aid of illustrations, examples, contrasts, and comparisons. In expository writing we must not forget to use the principles of unity, coherence, and emphasis.

APPLICATION.—"Your history teacher has told me that you are studying feudalism. If you will write a two-page theme upon this subject for me, keeping in

mind the things we have discussed this morning, I shall give you a mark in English. Furthermore, your history teacher has agreed to accept it as the monthly theme in that subject."

Comments.

The general plan of this lesson is very good. In actual use before a class it might be necessary to make some modifications and to use more questions and illustrations than are given. Aside from these, the plan seems one that would be of value in preparing for the presentation of this topic. The plan might be abbreviated very much and still aid a teacher in classroom work.

V. PLAN FOR AN INDUCTIVE LESSON IN ALGEBRA

Prepared by HENRIETTA STRANGFELD

Topic: *Rule for the Square of a Binomial*

PREPARATION.—"By being able to square a binomial at sight we will be able to solve problems more rapidly and save much time. Therefore we will take up the problem of squaring a binomial expression. What is a binomial expression?"

Answer: "An expression consisting of two terms."

"In order to square any number, what must we do?"

"Multiply the number by itself."

PRESENTATION: (Each problem is presented to the class while the pupils are at the blackboard.)

$$(a + b)^2 = ?$$

$$a + b$$

$$a + b$$

$$a^2 + ab$$

$$+ ab + b^2$$

$$a^2 + 2ab + b^2$$

The pupils all multiply it as they have been accustomed to doing.

$$(2 + 3)^2 = ?$$

In answer to this problem one pupil answers, "Twenty-five."

"Yes; but work it out as you did the first one, and prove to yourself that the answer is correct."

$$2 + 3$$

$$2 + 3$$

$$2^2 + 2 \cdot 3$$

$$+ 2 \cdot 3 + 3^2$$

$$2^2 + 2 \cdot 2 \cdot 3 + 3^2 =$$

$$4 + 12 + 9 = 25$$

$(m + n)^2 = ?$	$(r + s)^2 = ?$
$m + n$	$r + s$
$m + n$	$r + s$
<hr style="width: 50%; margin: 0 auto;"/>	<hr style="width: 50%; margin: 0 auto;"/>
$m^2 + mn$	$r^2 + rs$
$+ mn + n^2$	$+ rs + s^2$
<hr style="width: 50%; margin: 0 auto;"/>	<hr style="width: 50%; margin: 0 auto;"/>
$m^2 + 2mn + n^2$	$r^2 + 2rs + s^2$

COMPARISON AND ABSTRACTION.—“In the examples under presentation we find that $(a + b)^2 = a^2 + 2ab + b^2$; that $(2 + 3)^2 = 2 + 2(2 \cdot 3) + 3^2$; that $(m + n)^2 = m^2 + 2mn + n^2$; that $(r + s)^2 = r^2 + 2rs + s^2$.

“What do you notice that is similar in each of these cases?”

Answer: (Several different answers may be given.)

GENERALIZATION.—“From these examples I want every pupil to draw some conclusions and be able to state the same.” (After several pupils have formed and stated the conclusion drawn to the best of their ability, give the generalization you would wish them to retain, as: The square of the binomial equals the square of the first term, plus the square of the second term, plus twice the product of the first by the second.)

APPLICATION.—After the generalization was well in mind a number of examples differing as much as possible are given, as:

$$\begin{array}{l}
 + z)^2 = ? \quad (x + 2y)^2 = ? \quad (1 + 3x)^2 = ? \\
 + 4x)^2 = ? \quad (16a + b)^2 = ? \quad (\text{etc.})
 \end{array}$$

Comments.

This is a clear skeleton plan for an inductive lesson. It might be necessary for the teacher to present more instances as a basis for comparison than are given; but as much is given here as any teacher needs to include in a similar written guide. Whether more details are needed will depend upon the responses of the pupils.

**VI. PLAN FOR AN INDUCTIVE LESSON IN
GERMAN**

Prepared by GRACE GRIFFITH

Topic: *The Rule for Strong and Weak Adjective
Endings*

PREPARATION.—“To-morrow we shall take up the weak declension of adjectives. It will be easy for you to learn their inflectional endings, for there are only two; but your especial problem will be to find out when you should use the strong endings and when the weak endings. Now, if there is any one thing in the study of German that you should get fixed firmly in mind, it is this adjective declension. You must learn to be able to decide without hesitation whether your ending is to be weak or strong, and then to know immediately what the ending will be. This is one of the most important points, and there are few sentences that you will ever write in which you will not need to use one of these sets of endings.”

(After the remainder of the assignment the teacher will ask the pupils to bring examples with them tomorrow, using both strong and weak endings.)

PRESENTATION.—"Now let us consider some of the examples of sentences in which are used either the strong or weak endings of these adjectives or both."

EXAMPLES.—"Diese guten Männer sind hier.

"Welches warme Zimmer haben wir?

"Jede kleine Thür ist offen.

"Jene rote Rose ist schön.

"Schöne Frauen sind nicht immer gut.

"Wir haben gute Bücher" (etc.).

COMPARISON.—"In these sentences, when did we use the weak endings and when the strong ones?"

Answer: "The adjectives with weak endings are always preceded by another word."

"What are these words?"

Answer: "They are *der* and those words declined like *der*, such as *dieser, jener, jeder, mancher, solcher, and welcher.*"

GENERALIZATION.—"What rule can we derive from these facts?"

Answer: "An adjective is declined weak when used with the definite article *der*, or with any of the following words declined like *der*: *dieser, jener, jeder, mancher, solcher, and welcher.* These may be called *der* words, since they have endings like *der.*"

APPLICATION.—"You may go to the board and I give you sentences using adjectives. We shall

see if you will know correctly whether they will be weak or strong."

Comments.

This plan is an outline of the major points in the lesson. Many questions and answers may be needed to lead the class thought to the point it attains so directly in the plan, but the plan will keep the thought from wandering. Teachers often experience much difficulty in keeping the class from wandering, and it is mainly because their lesson preparations are not clear. The inductive lesson must be planned clearly if it is to be very successful, though it is not necessary that every detail be included.

VII. PLAN FOR A DEDUCTIVE LESSON IN ENGLISH

Prepared by GOLDIE McCUE

Topic: *What Kind of Man Is John Alden?*

THE PROBLEM.—The class has read far enough into the story to find that Alden goes to Priscilla at the bidding of Miles Standish to make the Captain's offer of marriage to her. Upon Alden's arrival the poem states that he and the maiden "sat down and talked of the birds and the beautiful spring-time," and Priscilla confesses that she is "so lonely and wretched." The teacher asks: "Will love conquer young Alden

into betraying the friendship of the Captain and into seeking the young woman for himself?"

THE DATA.—One pupil may note that Alden has been writing letters "full of the name and the fame of the Puritan maiden Priscilla." Another may quote, "Every sentence began or closed with the name of Priscilla." From this they can argue that he really loved her so deeply that he will not give her up to the Captain. Another may give Alden's own answer when the Captain asked him to make the proposal:

"If you would have it well done,—I am only repeating your maxim,—
You must do it yourself, you must not leave it to others!"

Those of the opposite opinion may cite another answer of Alden's:

"The name of friendship is sacred;
What you demand in that name, I have not the power to deny you!"

Also the line:

Friendship prevailed over love, and Alden went on his errand.

Also such statements as "This is the hand of the Lord" and "This is the cross I must bear" may be brought forward to show that Alden felt it his duty to carry out the Captain's desire.

APPLICATION.—The teacher draws out from the class that this is a conflict, as far as Alden is concerned, between love and duty. "Now let us study into the

character of Alden to see whether he will be swayed by love or duty," she suggests. The children will bring out that he was a well educated, poetically inclined, young Puritan. Then the teacher brings out from the pupils how the Puritans looked upon right and wrong, duty, etc. The children recall the Puritan rigidity in regard to righteousness and the Puritan determination to serve God in spite of all.

INFERENCE.—The pupils then may infer that Alden will remain true to his friendship for Standish rather than to his love for Priscilla, because he is a Puritan gentleman and must be true to what he considers his duty.

VERIFICATION.—The class then reads on a few lines to find Alden saying:

"So I have come to you now, with an offer and proffer of
marriage
Made by a good man and true, Miles Standish the Captain
of Plymouth!"

Comments.

Teachers often do interpreting similar to this in their work, but frequently do not recognize it as deductive teaching. Most deductive teaching omits some of the steps in the actual class-work, but they are always implied.

VII. PLAN FOR A DEDUCTIVE LESSON IN ALGEBRA

Prepared by MARGARET BAKER

Topic: *Equation in One Unknown*

FACTS.—“*Diophantus of Alexandria* (300 A. D.) was the first Greek algebraist. He was the first mathematician to develop the symbolic method to state that the product of two reciprocal quantities was a positive quantity. Little is known of his life excepting the information contained in his epitaph, which reads as follows: *Diophantus passed 1/6 of his life in childhood, 1/12 in youth, 1/7 more as a bachelor, 5 years after his marriage a son was born who died 4 years before his father, he had his father's age.* Let us find out how old *Diophantus* was when he died.

ANALYSIS.—“There is but one thing we want to find—namely, the age of *Diophantus*. Let us see whether all the conditions may be expressed in terms of the unknown *Diophantus' age*, which we will call x .

1/6 of his life was spent in childhood.

$\therefore x/6 =$ number of years spent in childhood.

1/12 of his life or $x/12 =$ time spent in youth.

$x/7 =$ time spent as a bachelor.

5 years = time he was married before his son was born.

$x/2 =$ age of son, or half the father's age.

4 yrs. = time between son's death and the death of his father.

PRINCIPLE.—“Since there is but one unknown and every condition may be expressed in terms of this, we know that we need only one equation; for when one unknown is involved only one equation is necessary for its solution. Fractions are involved, but we also know, from our rules for equations, that multiplying each member of an equation by the same number does not destroy the equality. We may clear fractions.

INFERENCE.—“Our equation is formed by adding all of the periods of his life to get his total age.

$$x/6 + x/12 + x/7 + 5 + x/2 + 4 = x$$

Multiplying both members of the equation by 84, we have:

$$14x + 7x + 12x + 420 + 42x + 336 = 84x$$

collecting:

$$9x = 756$$

$$x = 84 \text{ years, the age of Diophantos.}$$

VERIFICATION.—“We must prove our answer now, so as to be sure we are right. Do the different periods of his life add up to 84 years?

$$1/6 \text{ of } 84 \text{ years} = 14 \text{ years, time spent in childhood.}$$

$$1/12 \text{ of } 84 \text{ years} = 7 \text{ years, time spent in youth.}$$

$$1/7 \text{ of } 84 \text{ years} = 12 \text{ years, time spent as a bachelor.}$$

$$5 \text{ years, time married before son was born.}$$

$$84/2 = 42 \text{ years, age of son.}$$

4 years, time between death of
son and father.

64 years, age of Diophantos."

ADVICE.—(As far as possible, the work should be done—the steps thought out—by the pupils.)

Comments.

Much of the mathematics teaching is deductive. The form of this lesson would need much modification, as recognized by Miss Baker in her note at the end, before it would be real deductive teaching. Deductive teaching implies that the pupils take an active part in the proposal and evaluation of inferences.

IX. PLAN FOR A DRILL LESSON IN ENGLISH

Prepared by GOLDIE McCUE

Topic: *Drill on the Four Forms of Prose Discourse*

MOTIVATION.—"When you read, do you ever stop to ask yourself why the author wrote? For example, what is the purpose in Hawthorne's *Old Stone Face*, which you read in the grades?"

Answer: "To tell a story."

"What is the purpose of this selection?" (A short descriptive paragraph is read at this point.)

Answer: "To describe."

"Why did your author write your text?"

Answer: "To explain."

"Can any one think of another reason for writing or speaking? Do you remember from your history the contest between Stephen A. Douglas and Abraham Lincoln? To what use did they put prose discourse?"

Answer: "To arguë."

(The teacher now writes these four infinitives on the board.)

"We shall have to find some names for these different ideas, so that we can have a handle by which to use them. We do not want to say, 'This is prose that tells a story.' What shall we say?" (As the teacher gets the names of the four forms she puts them on the board opposite the infinitive phrases. She asks the class what advantage there would be in knowing these names and their meaning.) After their replies she says:

"Now, these are the names or handles of the tools with which we are going to work. We shall use these four frequently. Let us get them firmly in mind to-day.

DRILL PROPER.—"What do we call the form that tells a story? the form that describes an object? the one that explains? the one that produces an argument?" (She again repeats each one, the pupils answering in concert.) "What does narration do? What does description do? exposition? argumentation?" (The teacher then enumerates several selections of prose that the class has read previously, and asks the pupils to

classify as to the form to which each belongs. Teacher erases the work on the board and has the girls name the four forms; then the boys also, in unison. Then several individuals are called upon to name the four and tell the meaning of each.)

"Mary, you may name one of the forms, and John will tell us the meaning, and alternate with forms and meaning right back through the row."

Comments.

It might be questioned whether the four forms of prose discourse are material for a drill lesson. Some teachers might prefer to teach them as concepts and thus secure the same results as are secured here by drilling. The form of the lesson, however, is very good, and the suggestions it contains may be of value for other subjects that yield more drill outcomes than English.

X. PLAN FOR LESSON IN APPRECIATION IN ENGLISH

Prepared by PAULINE YATES

Topic: *The Vision of Sir Launfal*

A. *Negative Preparation.*

1. ANTICIPATORY INTEREST.—(A week before the lesson proper.) Teacher: "We shall finish our study of Longfellow to-morrow, and after the study of Whit-

tier we shall come to the study of Lowell and his beautiful poem, *The Vision of Sir Launfal*."

(The day before the lesson.) Teacher: "To-day we shall take up the life and works of Lowell in our Literatures. I hope you have all studied the lesson carefully, so that you may know as much as possible what sort of man it was who wrote such a fine poem as *The Vision of Sir Launfal*. We are going to read it to-morrow.

2. OVERCOMING DISTRACTIONS.—Teacher: "The spelling lesson for to-day is made up of rather unfamiliar words that are used in the poem. Look up in the dictionary the meaning of the following words, and also know how to spell them: *list* (verb), *lay* (noun), *aurora*, *vista*, *benedicite*, *shrive*, *dross*, *chalice*, *churlish*, *groin* (verb), *spars*, *crypt*, *fretwork*, *arabesque*, *corbel*, *flame-pennons*, *seneschal*, *decrepity*, and *surcoat*."

B. *Positive Preparation.*

APPERCEPTIVE BASIS.—The teacher should tell in brief the story of the Holy Grail and explain the plot of the poem as used by Lowell. The preludes, Summer and Winter, should be explained as forebodings of the nature of the parts. Some of the metaphors may also be mentioned.

C. *Lesson Proper.*

1. IMMEDIATE PREPARATION.—(a) The teacher must be so filled with knowledge and appreciation of

the subject that it will overflow and inspire her pupils with the same enthusiasm. (b) Aim.

Teacher: "As we have read in our books, *The Vision of Sir Launfal* has been the most widely read of any of Lowell's poems. In addition to having some exceptionally fine nature descriptions, the poem teaches a noble lesson of sympathy with suffering. We shall study this poem carefully for two good reasons: first—to become acquainted with one of the finest poems in the English language and to learn to appreciate it and others of the same general sort. Secondly, we learn, through it, to know and appreciate about the finest doctrine ever expressed:

Not what we give, but what we share,
For the gift without the giver is bare:
Who gives himself with his alms feeds three;
Himself, his hungering neighbor, and Me."

2. PRESENTATION.—The teacher should then read the entire poem in her best voice, using careful expression and pronunciation of words.

3. DISCUSSION, ESTHETIC.—The teacher should study with the pupils the structure of the rime, alliteration, onomatopœia, and rhythm. All the devices used to increase the musical qualities of the poem should be noted.

4. DISCUSSION, INTELLECTUAL.—The meanings of words should be studied, recalling those learned in the previous spelling lesson, and the pupils should be permitted to ask for meanings of words that may have

been overlooked by the teacher. These questions should preferably be answered by other pupils in the class whenever possible. Reading may then follow, each pupil reading a part, the next called on continuing, until the whole is read. The preludes should be read over several times.

5. REPRODUCTION.—The pupils should now be required to memorize selected parts, particularly the preludes and the lines quoted earlier in this plan. The rhythm and beauty of sound and familiarity of words easily will lead the pupils to a desire to learn the lines. After the assigned parts are learned, the teacher may ask the pupils to reproduce some of the sections from memory.

Comments.

This is a complete lesson that includes all of the steps. It is very good, though a little more detailed in some aspects than might be best.

XI. PLAN FOR A LESSON IN APPRECIATION IN VERGIL

Prepared by MARY CORINNE ROSEBROOK

Topic: Tennyson's poem *To Vergil*

1. PREPARATION.—Negative and positive preparation have been provided for before the day arrives on which this lesson is to be presented. There is need, however, for immediate preparation before the poem is presented.

Teacher: "To-day we are going to read and talk about a poem of Tennyson's on Vergil for which I have been preparing you for a week. My little secret is going to come out this morning. I told you we would talk about one of Tennyson's poems, but I did not tell you which one or where you might find it, for I wanted you to hear it for the first time here in class.

"I am so glad you have been having Tennyson's *Idyls of the King* in your English class. You have at least a 'speaking acquaintance' with the great English poet. I want to tell you something of Tennyson's relation to the classic poets first of all before we read the poem. No doubt your English teacher has already emphasized this." (The teacher briefly tells how Tennyson studied the classics, of his love for them, how he studied Greek and Latin in grammar school, and of his good scholarship in these branches, how he constantly employed figures and verse forms from the Latin and Greek masters and continually alludes to mythology and legendary history.)

2. PRESENTATION.—"This poem that I am going to read to you deals specifically with Vergil and is indeed entitled *To Vergil*. It was written at the request of the Mantuans for their celebration of the nineteenth centenary of Vergil's death. Since we have studied the *Aeneid* so carefully and appreciatively all year, this poem ought to mean much to us."

The teacher reads this poem smoothly and with the rhythm Tennyson intended it to

have. The children will be interested, for they will recognize familiar words, such as "Ilion" and "Dido's pyre," and will feel the rhythm of the poetry.

Teacher: "Would you like to hear it again? We got the effect of the beautiful language, verse-melody, and rhythm this time. As I read it over the second time, notice particularly the references Tennyson makes to just what we have been studying."

After a second reading the teacher will see that the pupils have enjoyed the poem from the esthetic point of view. After this she will proceed with a short intellectual discussion, rereading particular stanzas and verses. She will call attention to the words that are truly Vergilian and to the allusions to the *Æneid*. Questions, as, Who were the Mantuans? What story of the *Æneid* is referred to in the first stanza of the poem? What examples do the pupils recall of Vergil as a landscape-lover? and Why is Vergil called a Mantovano? will be asked. The teacher will explain other references to the poetry of Vergil, as "happy Tityrus" and "chanter of the Pollio." A few figures of speech will be noticed, but there must not be a too detailed study of the poem, for the general effect is of great importance.

The poem will be read again at this point, perhaps by a pupil. The teacher will tell the pupils where to find it and to read it again for themselves. It is a great English master's appreciation of the great Latin poet Vergil.

(This lesson ought to come near the close of the year's study of Vergil's *Æneid*.)

Comments.

This lesson has implied the advanced preparation and does not give a chance for reproduction. It is a lesson similar to many that teachers may present.

Suggested Readings

Lesson plans are found in the following:

CHARTERS, W. W. . *Methods of Teaching*. Chapter XXV.

EARHART, LIDA B. *Types of Teaching*. Appendix.

STRAYER, G. D. *The Teaching Process*. Chapter XVI.

OUTLINE

Chapter I. Introduction.

Chapter II. The Factors that Condition Teaching.
Introduction.

Objective conditions.

I. Physical conditions.

- A. Temperature and humidity.
- B. Ventilation.
- C. Lighting.

II. Class-room management.

- A. Routine factors.
 1. Seating of pupils.
 2. Pupil movements.
 3. Handling materials.

III. Discipline.

- A. Good discipline a necessity.
- B. Changing character of discipline.
- C. Social aspects.
- D. Measures for securing good discipline.
 1. Proper routine.
 2. Correct attitude on the part of teacher.
 3. Constructive measures.
 - a. Make work the master.
 - b. Individual assignments.
 - c. Stimulation of group responsibility.
 - d. Treatment of individual offenses.

IV. Individual differences.

- A. Recently recognized problem.
- B. Importance of and character of individual differences.
- C. Provisions for individual differences.
 1. Diversified curriculums.
 2. Free election of courses.

3. Grading pupils according to ability.
4. Study coaches for slow pupils.
5. Supplementary work for bright pupils.
6. Combination of plans.

Subjective conditions.

Chapter III. Subject-matter.

Nature of.

Origin of.

Functions of.

- I. Intrinsic.
- II. Preparatory.
- III. Decorative.
- IV. Disciplinary.

Selection of.

- I. Basis of minimal essentials.
- II. Basis of social needs.
 - A. Social needs change with time.
 - B. Social needs vary between communities.
 - C. Social needs vary among the individuals of a community.
- III. Basis of relative values.

Arrangement of subject-matter for teaching.

- I. According to relative values.
- II. Pedagogical instead of logical.
- III. Around pivotal points.

Preparation of subject-matter for teaching.

- I. Knowledge of subject-matter alone not sufficient.
- II. Differences between teacher's and pupil's preparation.
- III. Necessity for constant preparation.
 - A. Term preparation.
 - B. Daily preparation.

Chapter IV. Outcomes of Teaching.

Types of outcomes:

- I. Knowledge.
 - A. Facts.
 - B. Concepts.
 - C. Generalizations.
 - D. Mental attitudes and methods of thought.

II. Drill.

- A. Habits.
- B. Rote associations.

III. Emotional.

- A. Ideals, sentiments, and prejudices.
- B. Appreciation and enjoyment.

IV. Practical abilities.

- A. Expression.
- B. Ability to study.
- C. Development of individuality.
- D. Moral development.

Nerve modifications as the basis of outcomes.

Relation of outcomes to teaching method.

Chapter V. The Formal Class Period.

Introduction.

Types of activities.

I. Assignment.

- A. Functions.
 - 1. Must point out what is to be done.
 - 2. Must tell how to do it.
 - 3. Must motivate.

B. Time to make.

C. Length.

D. Method.

II. Recitation.

A. Functions.

- 1. A check on the assignment.
- 2. A time to organize the lesson content.
- 3. Introduction of new materials.

B. Forms of the recitation.

- 1. Mere reproduction.
- 2. Topical.
- 3. Question and answer.
 - a. Purpose of questions.
 - b. Social nature of the recitation question.
 - c. Form of questions.
 - d. Number of questions.
 - e. Characteristics of good questions.
 - f. Distribution of questions.
 - g. Pupil answers.

- 4. Pupil reports.
 - a. Advantages of.
 - b. Disadvantages of.
- C. Characteristics of a good recitation.
- III. Special teaching forms.

Chapter VI. Imparting Knowledge.

An important phase of the teacher's work.

Methods of imparting knowledge.

- I. Type studies.
 - A. Nature of.
 - B. Outcomes.
 - C. Strength of the type-study method.
 - D. Weaknesses.
- II. Exposition.
 - A. When to use exposition.
 - B. Technique of expository teaching.
 - 1. Approach and statement of aim.
 - 2. Presentation.
 - a. Presentation proper.
 - (1) Principles that aid.
 - (2) Use of analogies, stories, and illustrations.
 - b. Summary.
 - 3. Application.
 - C. Value of expository teaching.
 - D. Defects of expository teaching.

Chapter VII. Imparting Knowledge (*Continued*).

- III. Induction.
 - A. When to use the inductive lesson.
 - B. Technique of the inductive lesson.
 - 1. Preparation.
 - 2. Presentation.
 - 3. Comparison and abstraction.
 - 4. Generalization.
 - 5. Application.
 - C. Strength of inductive teaching.
 - D. Defects and shortcomings of inductive teaching.
- IV. Deduction.
 - A. Types of deductive teaching.
 - B. Technique of deductive teaching.

1. Data.
2. Principles.
3. Inference.
4. Verification.

C. Advantages of deductive teaching.

D. Limitations of deductive teaching.

V. Reflective thinking.

A. Opportunities for using reflective thinking.

B. Steps in reflective thinking.

1. Defining the task or problem.
2. Methods of attack or solution.
3. Verification.

C. Value of reflective thinking.

Method and mental activity.

Chapter VIII. Forming Habits and Rote Associations.

I. Drill work.

A. Two kinds of drill outcomes.

B. Two phases of the problem.

C. The first question.

D. Technique of the drill lesson.

1. Motivation.
2. Focalization.
3. Repetition.

E. Devices that aid.

1. Emulation.
2. Competition.
3. Time limit.
4. Rhythm.
5. Variation.
6. Concert work.
7. Problems.
8. Approval.
9. Stern Necessity.

F. Psychology of drill work.

1. Length of drill exercises.
2. Pleasure aids, habit formation and memorizing.
3. Zeal and concentration necessary.
4. Forms of the drill exercise.
5. Trial and error indispensable.
6. Verbal directions a help.

7. Understanding an aid to memorizing.
8. Memorizing by wholes.
9. The learning curve.
10. Age and drill exercises.

Chapter IX. Developing the Emotions.

Introduction.

- I. A neglected phase of teaching.
- II. Lack of development shown by the general population.

Psychology of emotional teaching.

- I. The radiation of emotional attitudes.
- II. Individual differences.

Information as a basis of emotional teaching.

Scope of emotional development.

I. Appreciation.

- A. Esthetic.
- B. Social.

II. Enjoyment.

Technique of the lesson that develops the emotions.

I. Preliminary stages.

- A. Negative preparation.
 1. Anticipatory interest.
 2. Overcoming distractions.
- B. Positive preparation.

II. The lesson proper.

- A. Immediate preparation.
- B. The hour of appreciation.
- C. Esthetic discussion.
- D. Intellectual discussion.
- E. Reproduction.

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3. Pupil organizations.

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- A. Methods must be suited to the outcomes desired.
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 - C. Study devices and aids.
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 - 2. Attitudes that aid.
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